



ENGINEERING DRAWINGS MENG 102

CLASSWORK SHEETS

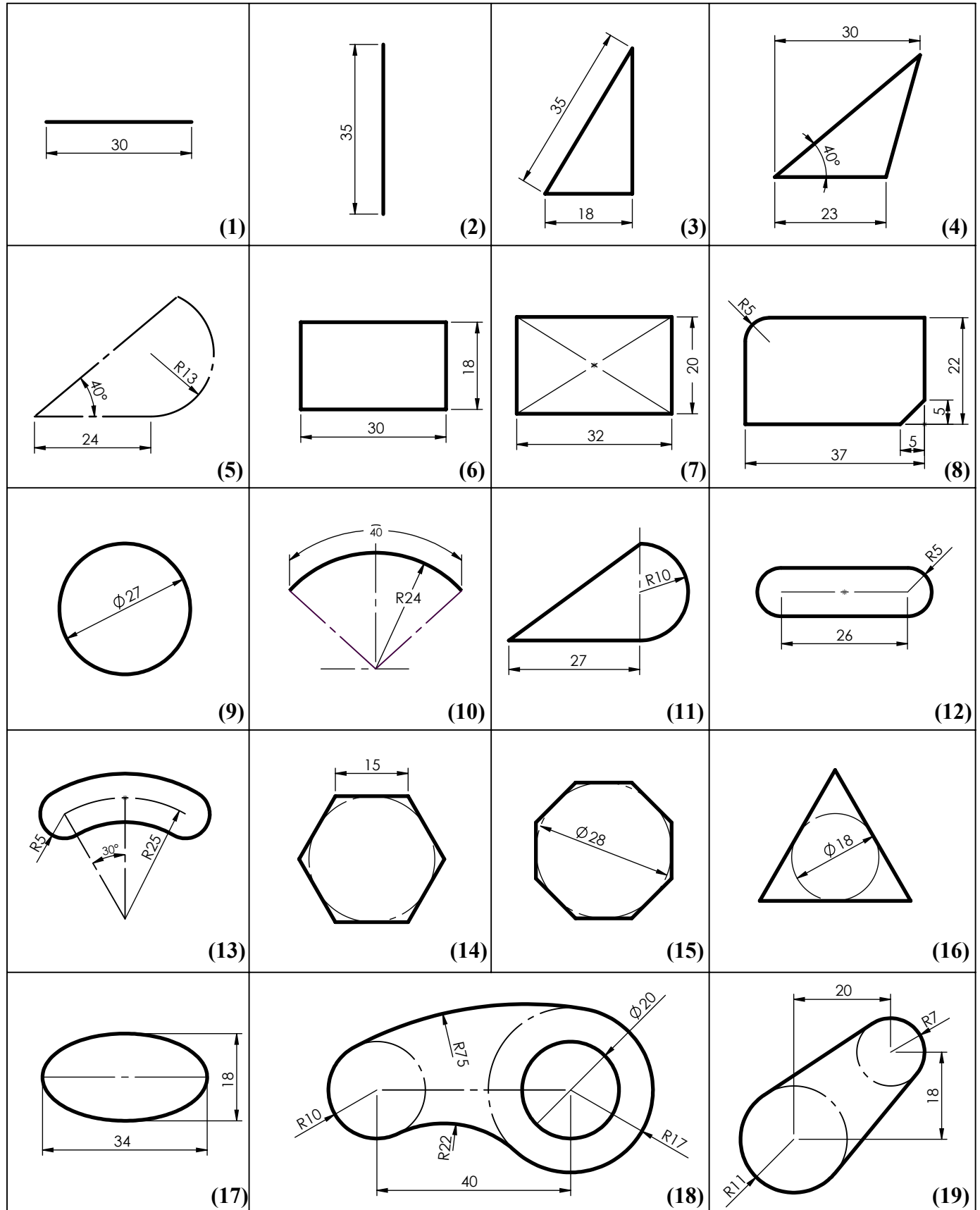
Department of Mechanical Engineering
Faculty of Engineering
King Abdulaziz University
Jeddah, Kingdom of Saudi Arabia

FALL 2015

Sketch Entities : *Line, Rectangle, Circle, Ellipse, Polygon, Slot.*

Sketch Tools : *Fillet, Chamfer, Relation (tangent, horizontal, perpendicular, equal), Smart dimension*

Feature :



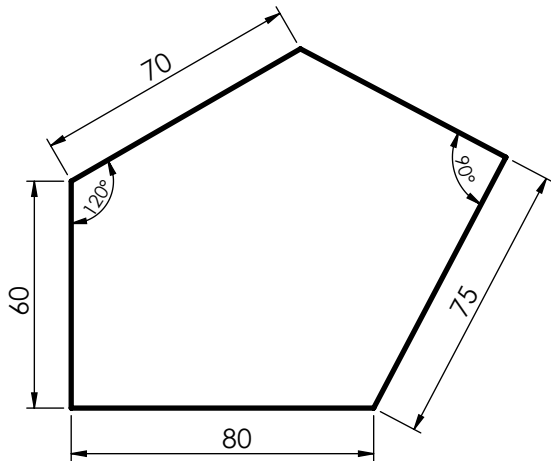
Sketch Entities : *Line, Centerline, Rectangle, Circle, Ellipse*

Sketch Tools : *Fillet, Trim, Relation (tangent, horizontal, perpendicular, equal), Smart dimension*

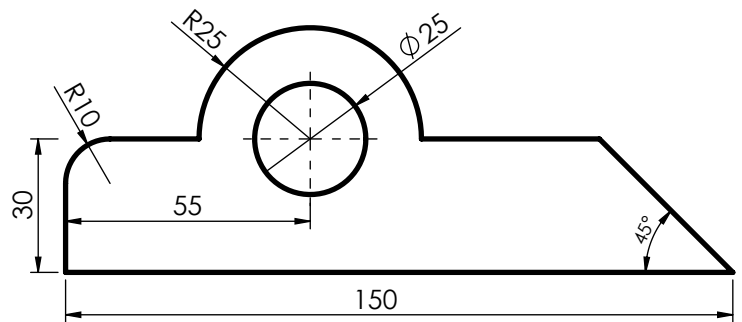
Feature : *Extrude*

Problems1: Draw the following sketches then extrude it with thickness of 10mm

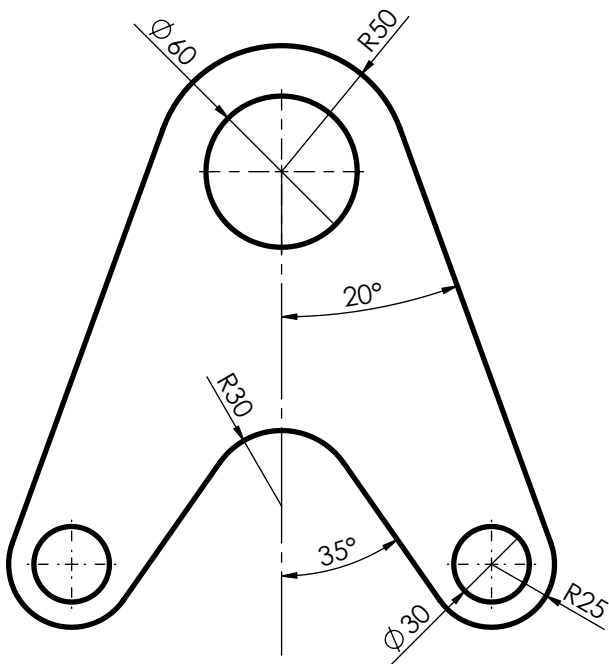
CLASSWORK



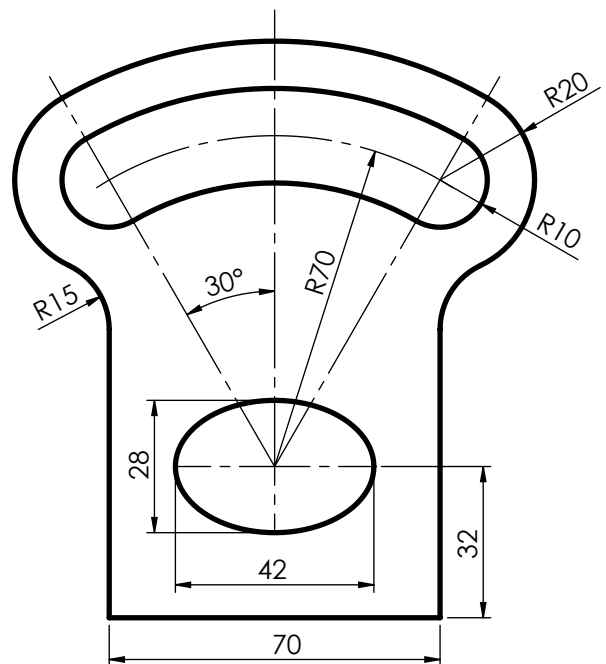
(1)



(2)



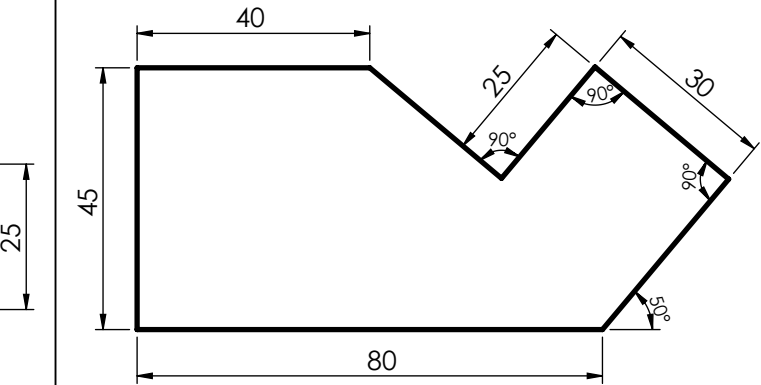
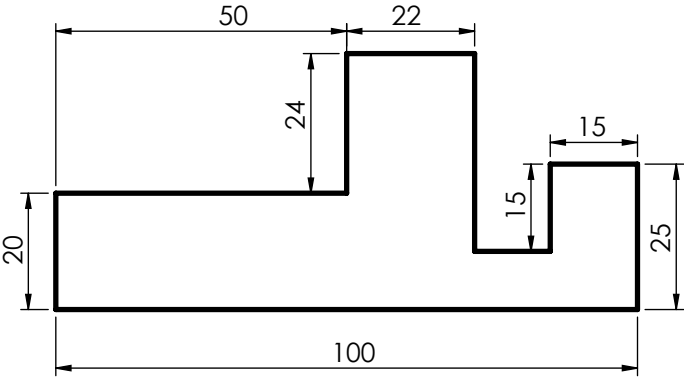
(3)



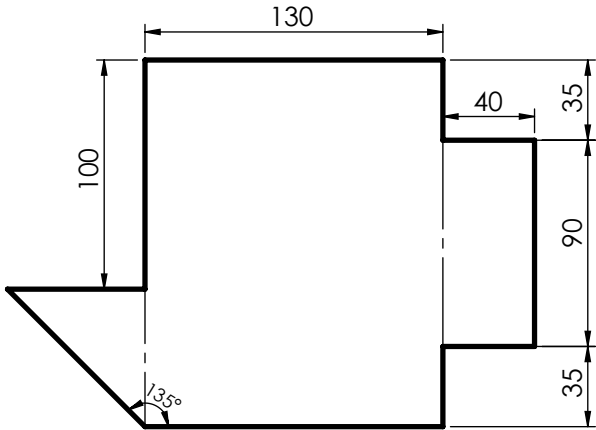
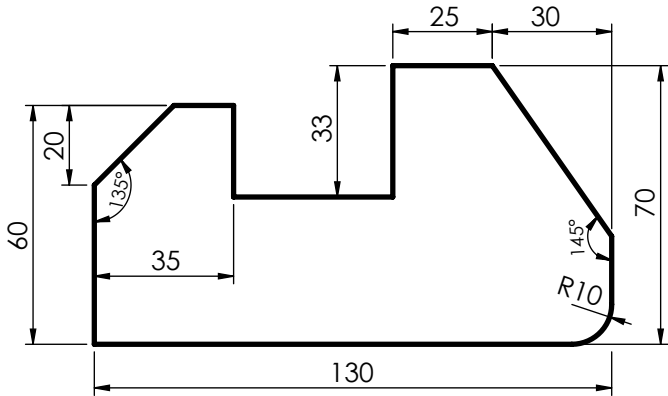
(4)

HOMEWORK

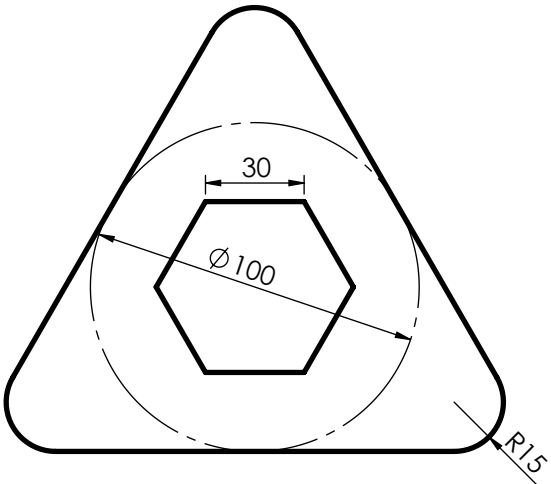
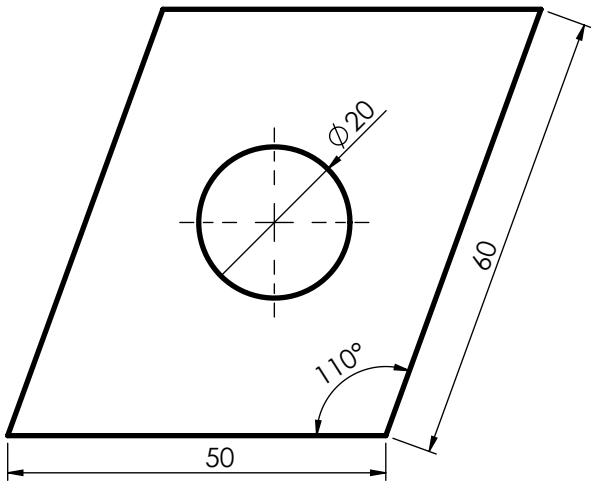
- Level 1



(5) (6)

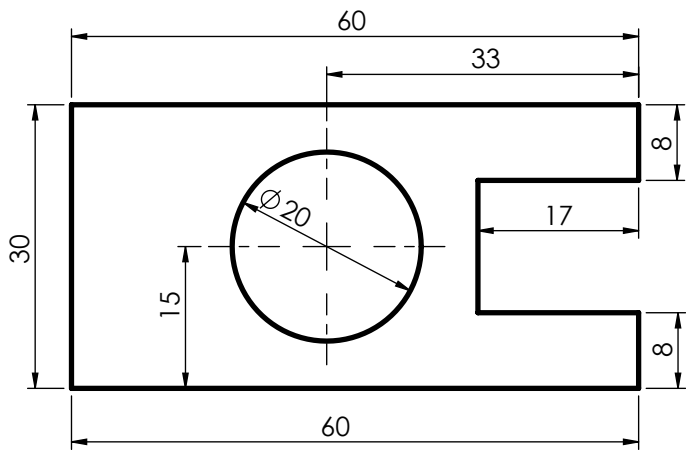


(7) (8)

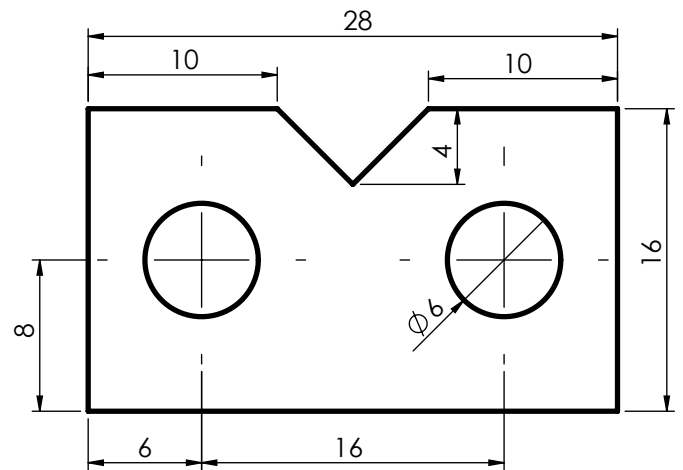


(9) (10)

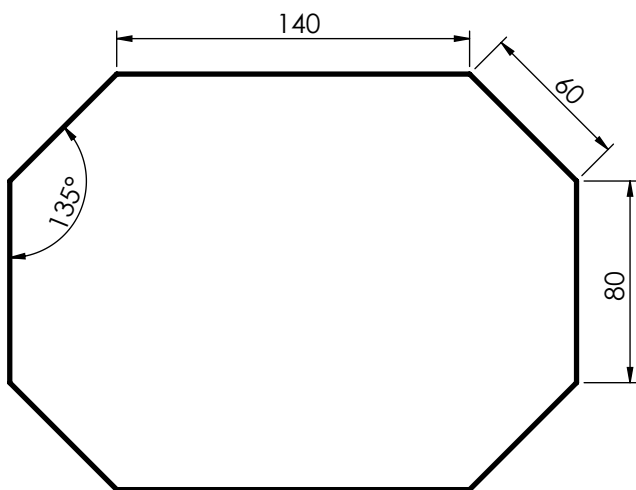
- Level 2



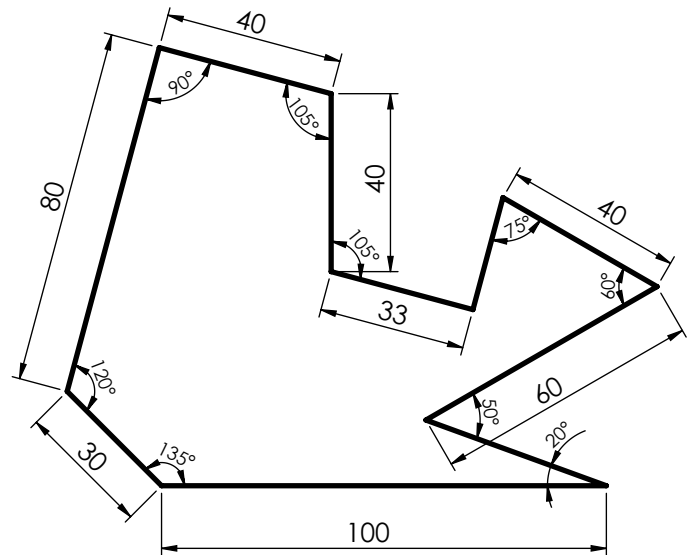
(11)



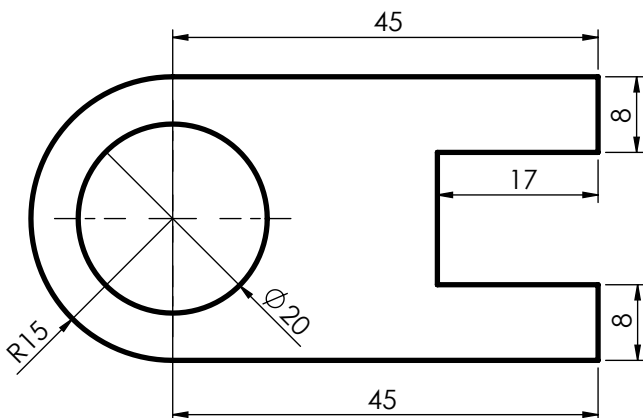
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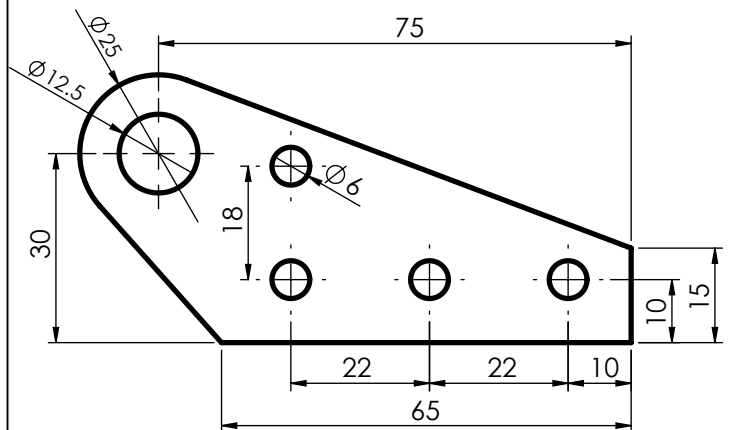
(13)



(14)

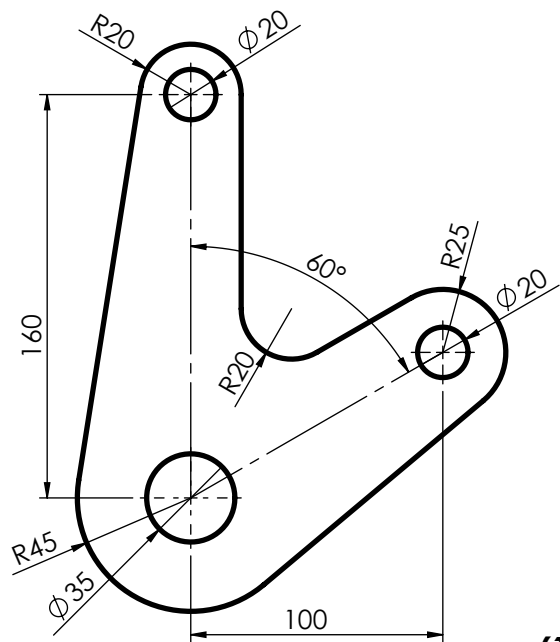


(15)

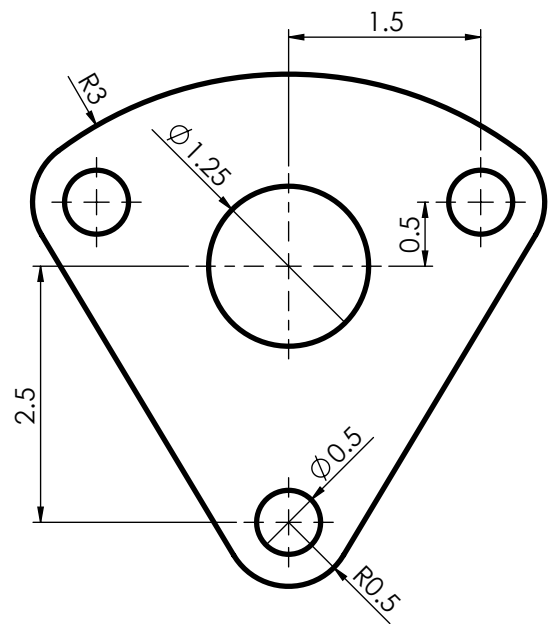


(16)

- Level 3

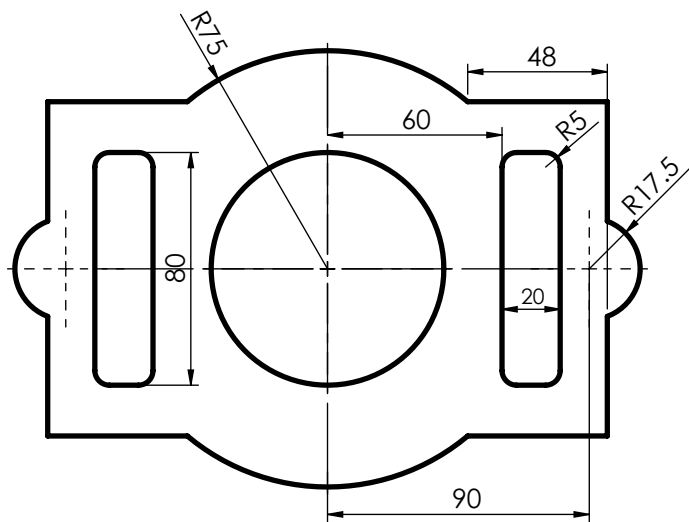


(17)

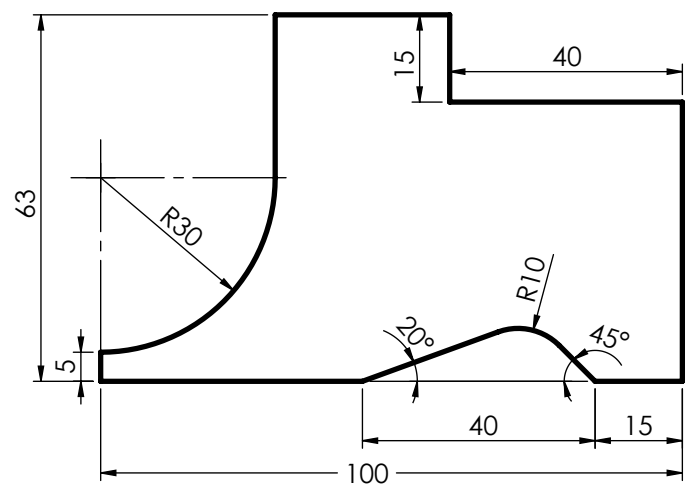


(18)

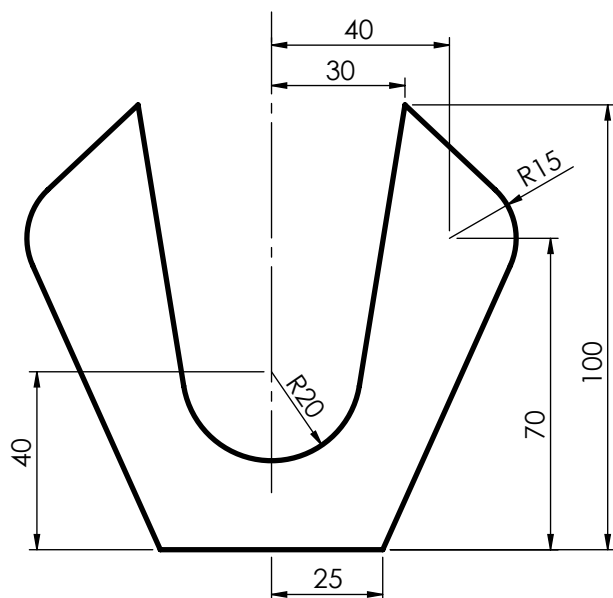
Unites are in inches



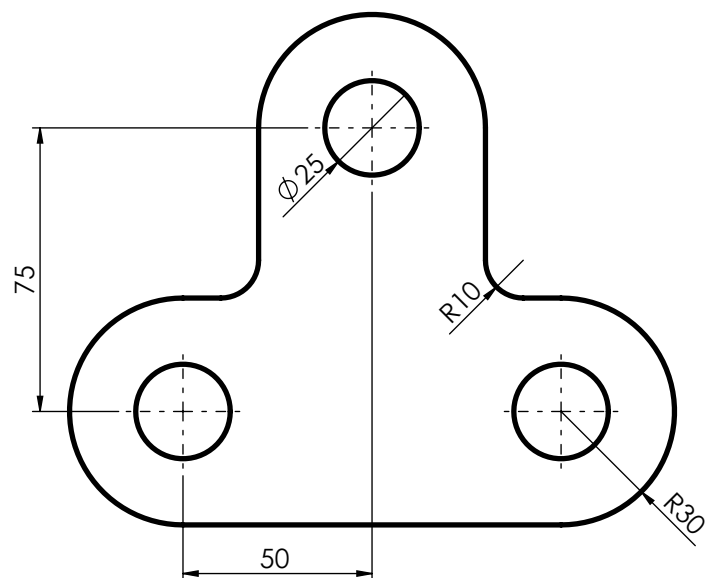
(19)



(20)



(21)



(22)

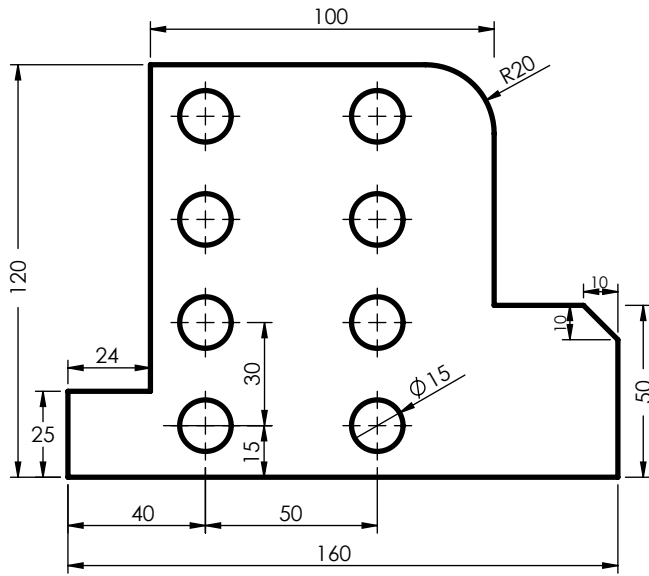
Sketch Entities : *Polygon, Arc, Slot.*

Sketch Tools : *Chamfer, Extend, Construction geometry, Mirror, Linear pattern, Circular pattern, Offset.*

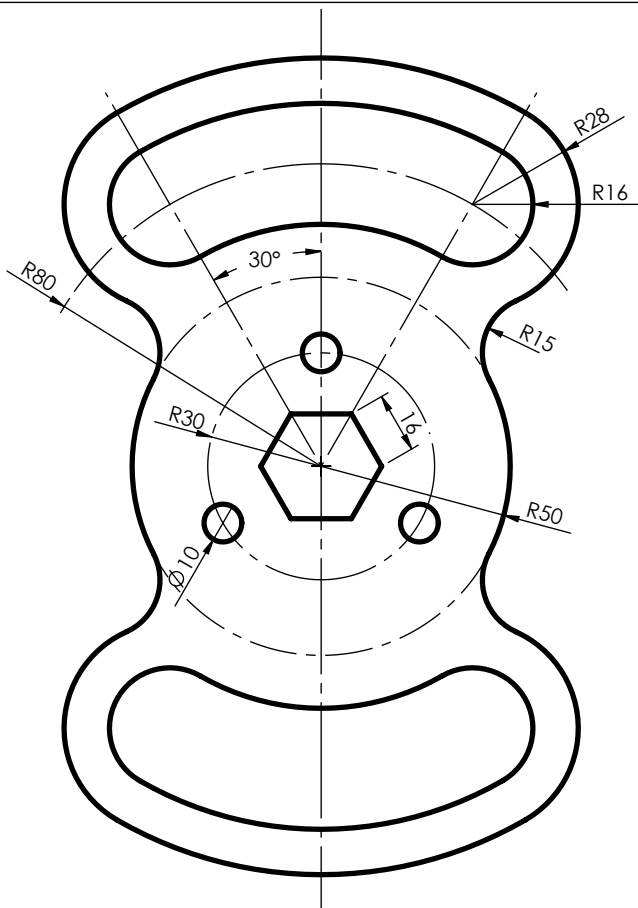
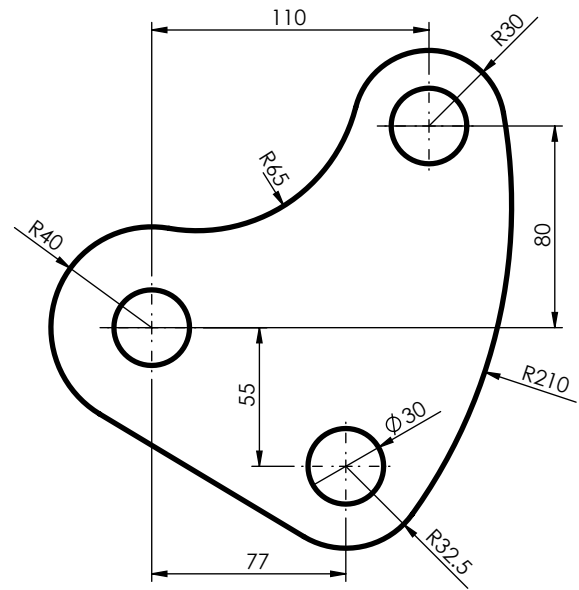
Feature : *Extrude*

Problems1: *Draw the following sketches then extrude it with thickness of 10mm*

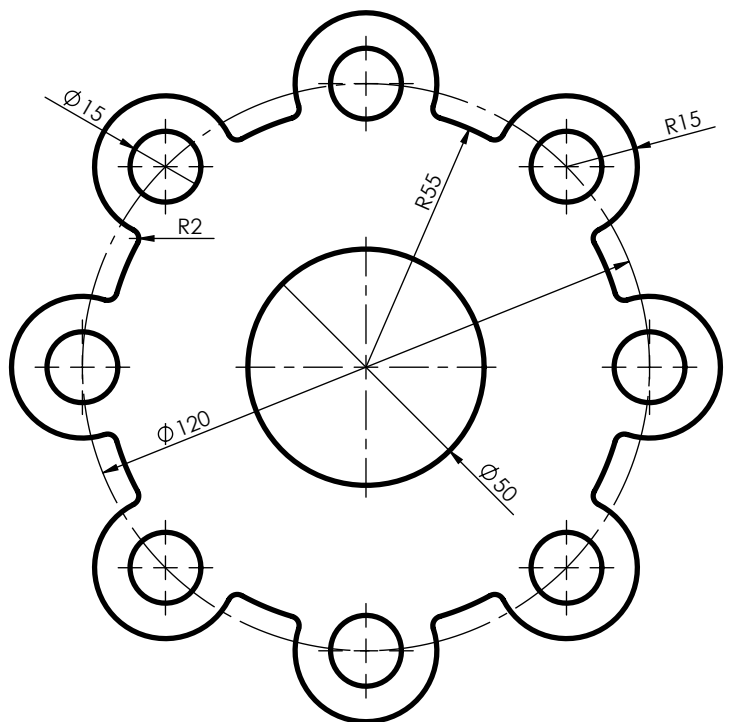
CLASSWORK



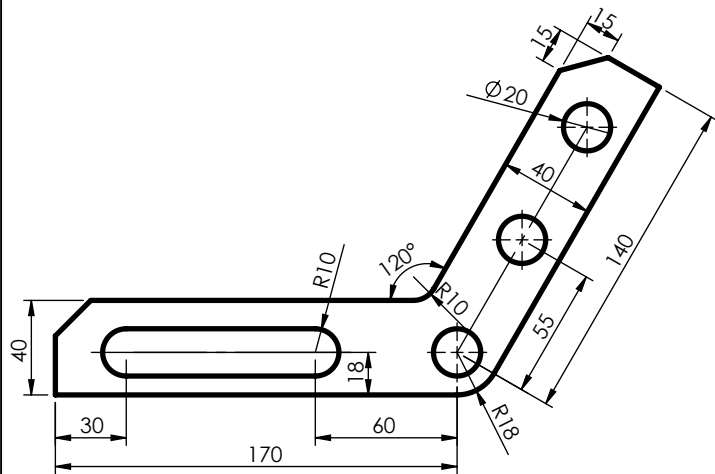
(1) (2)



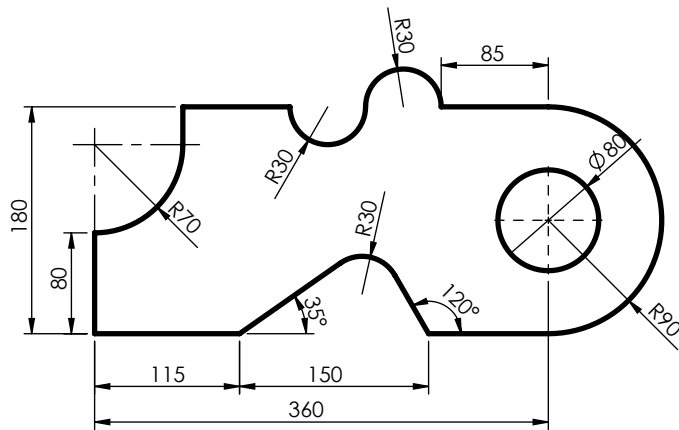
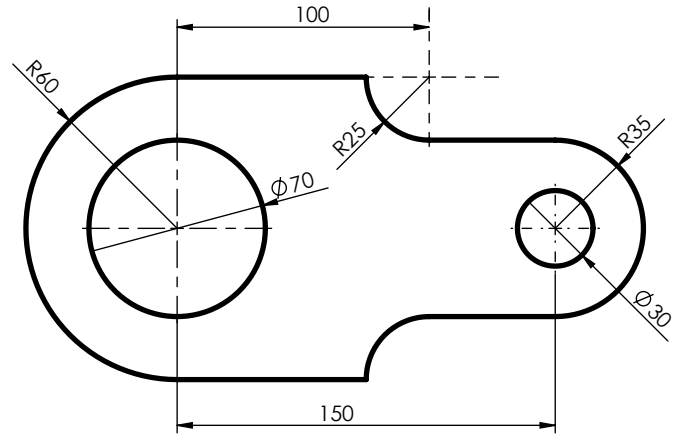
(3) (4)



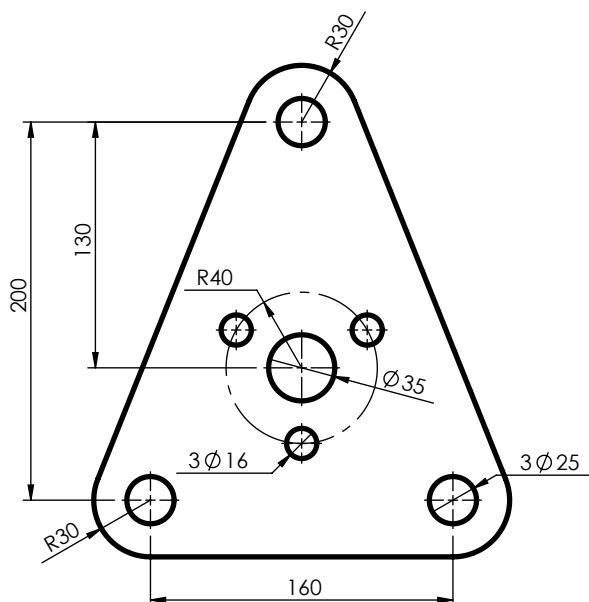
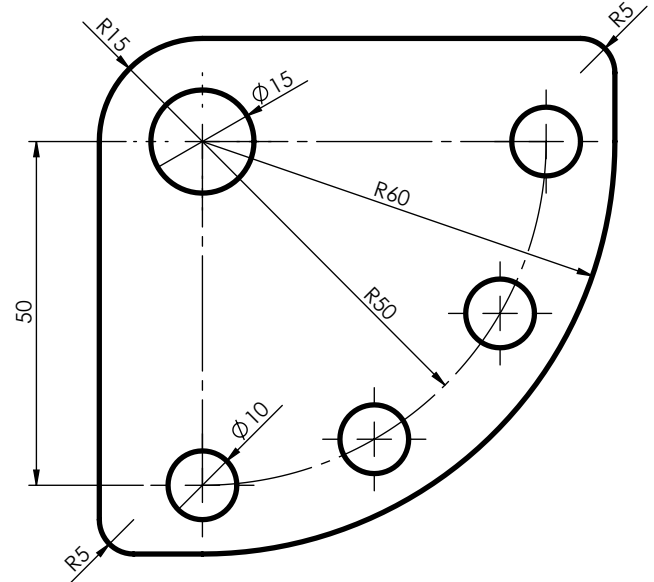
- Level 1



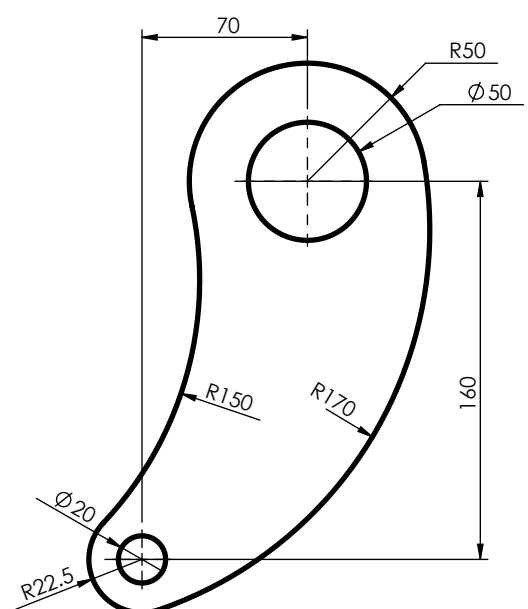
(5) (6)



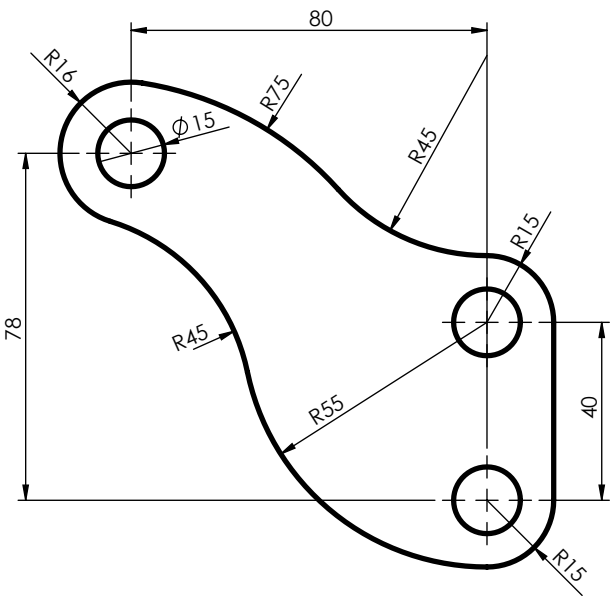
(7) (8)



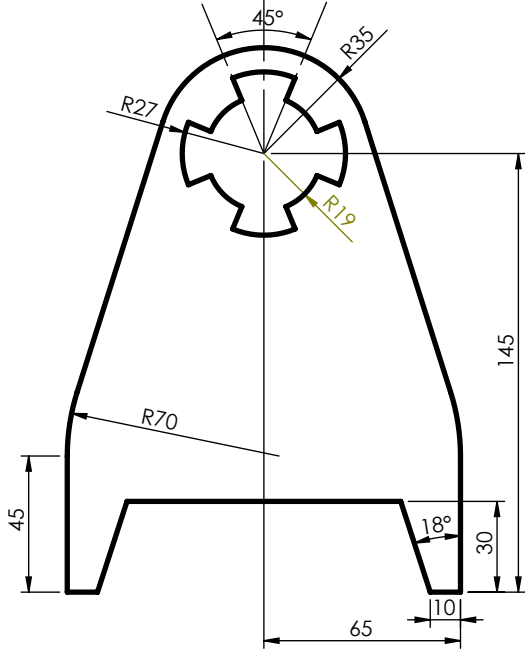
(9) (10)



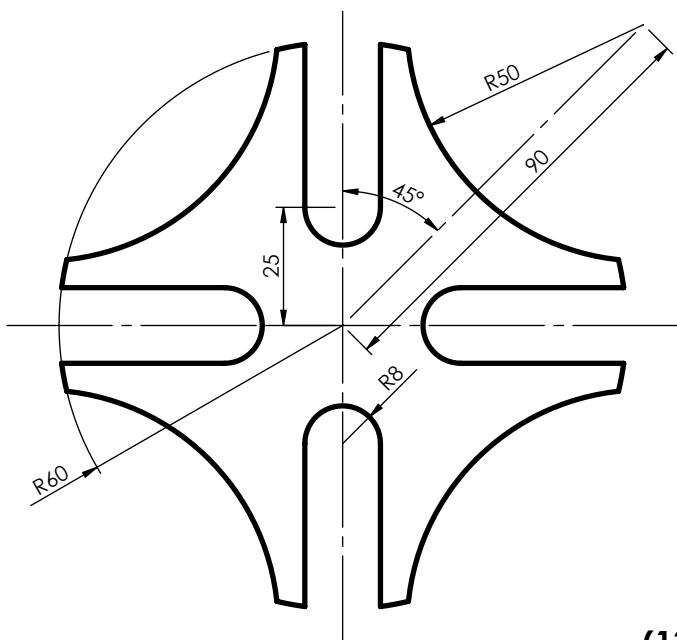
- Level 2



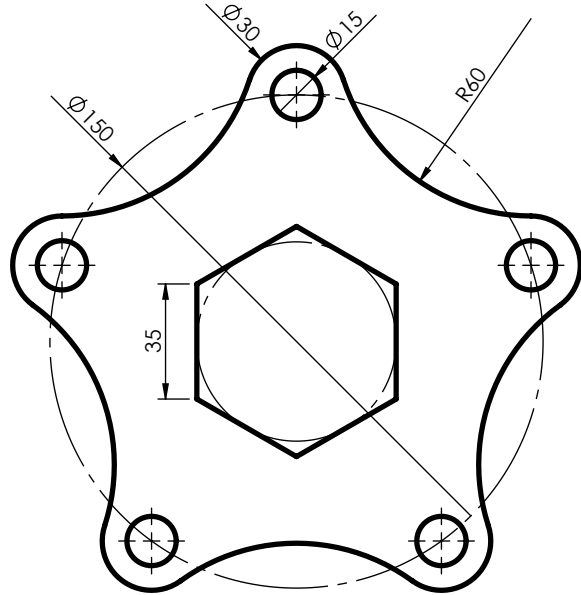
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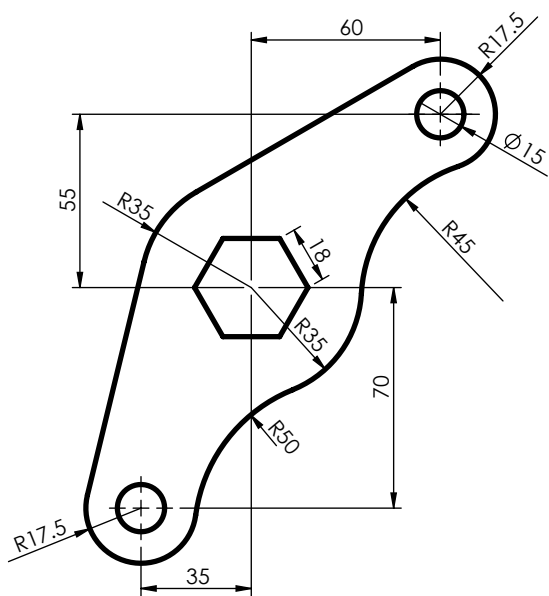
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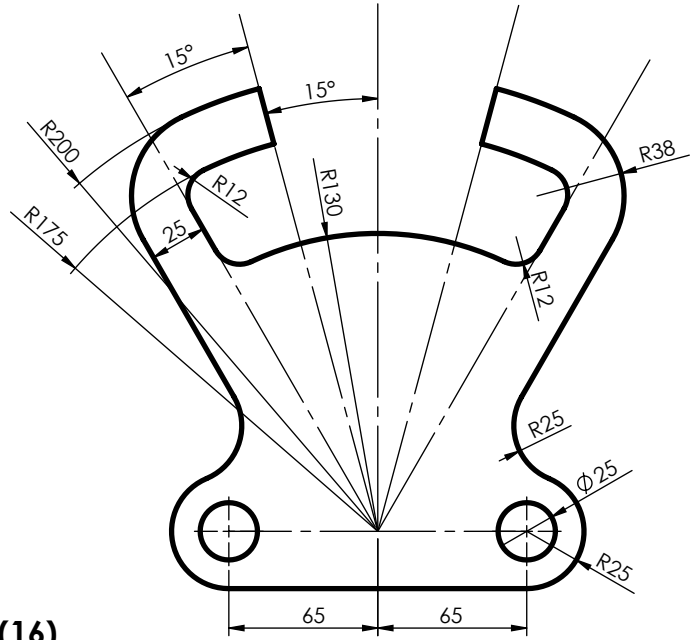
(13)



(14)

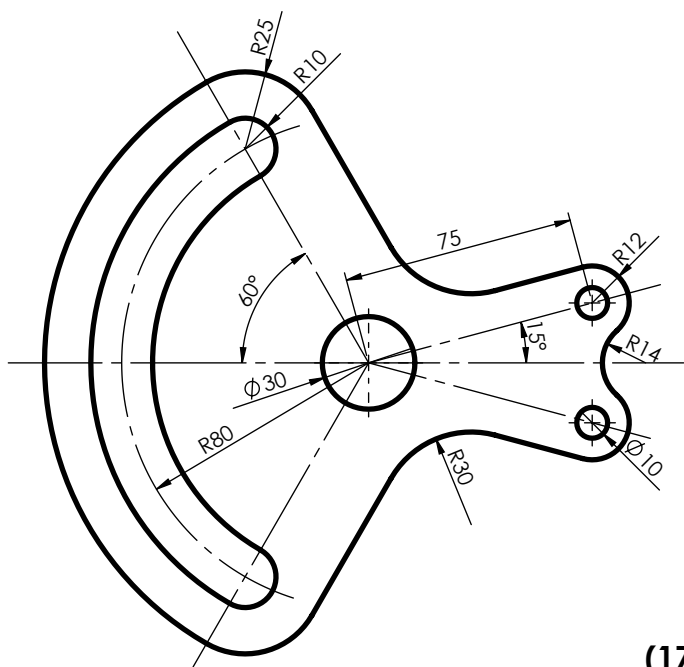


(15)

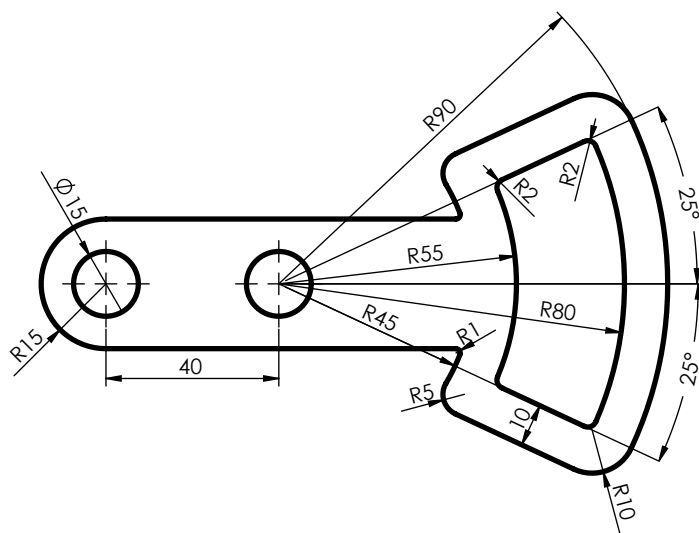


(16)

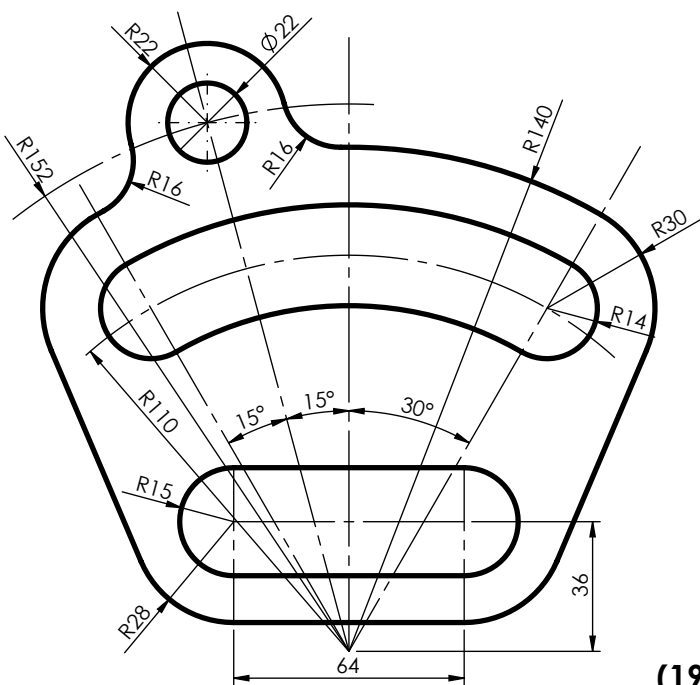
- Level 3



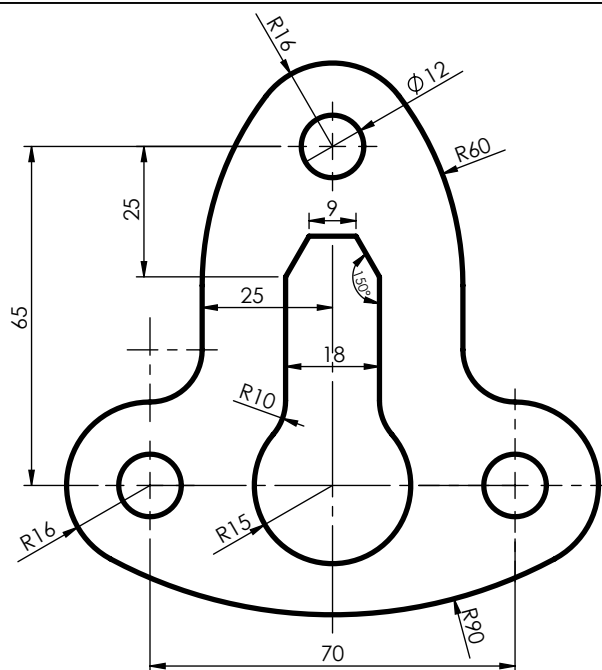
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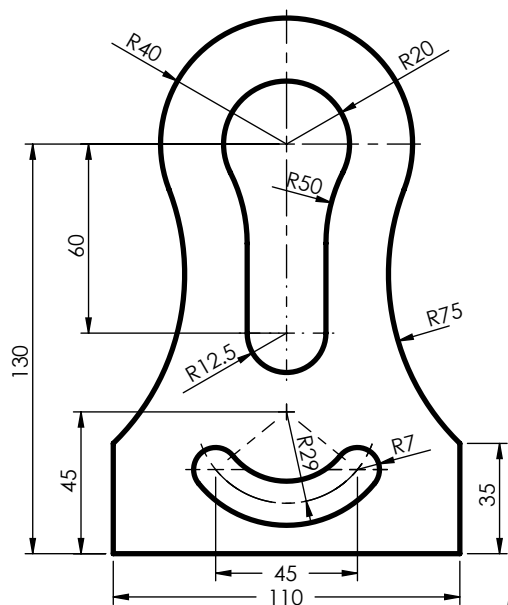
(18)



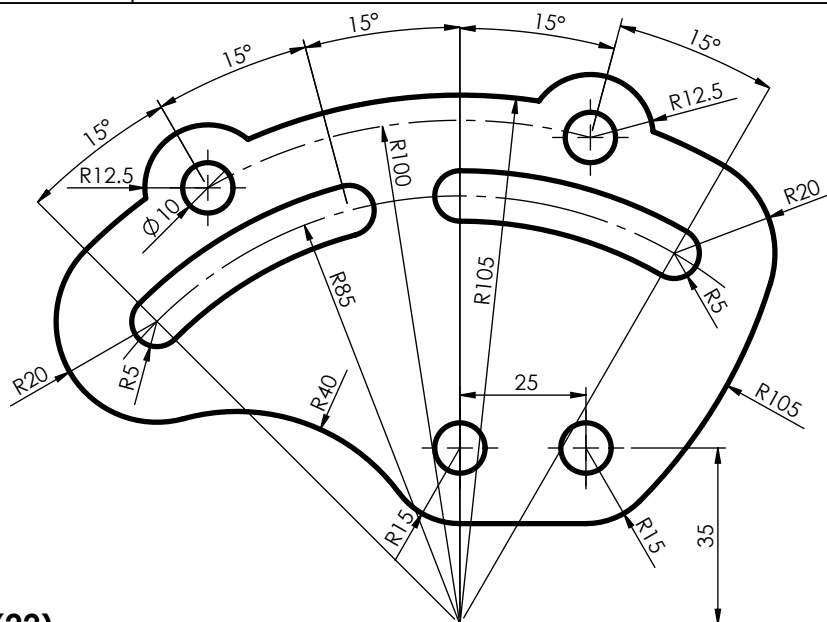
(19)



(20)



(21)

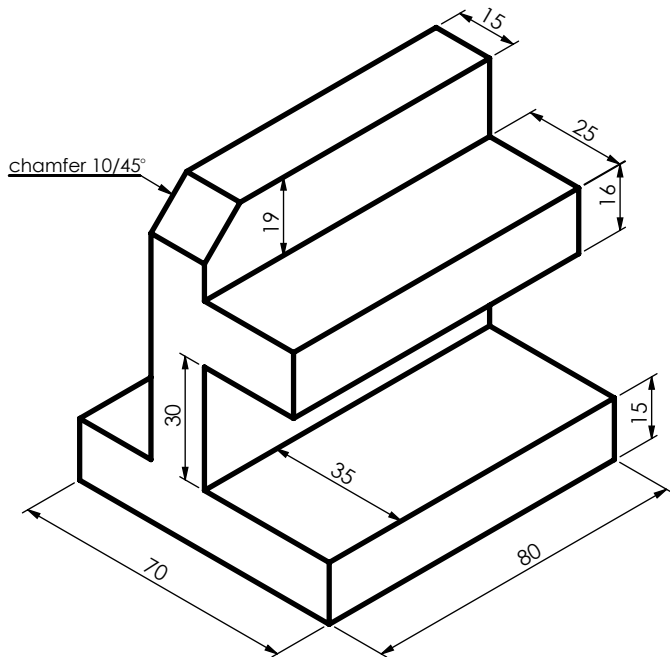


(22)

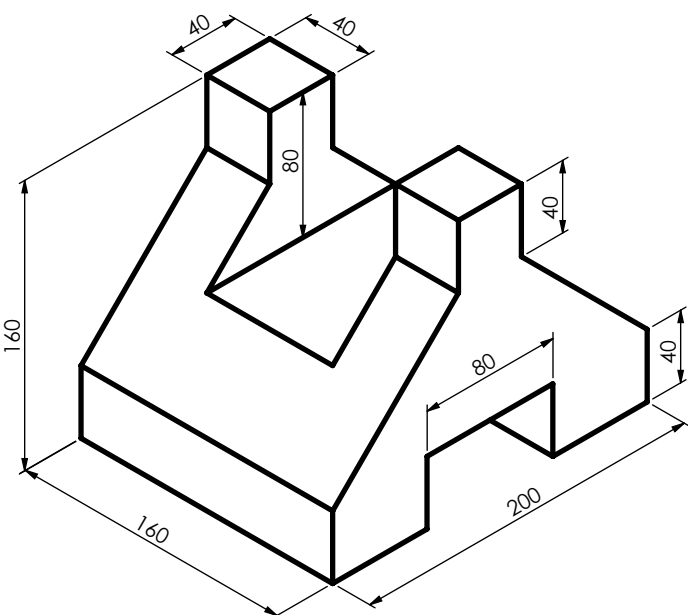
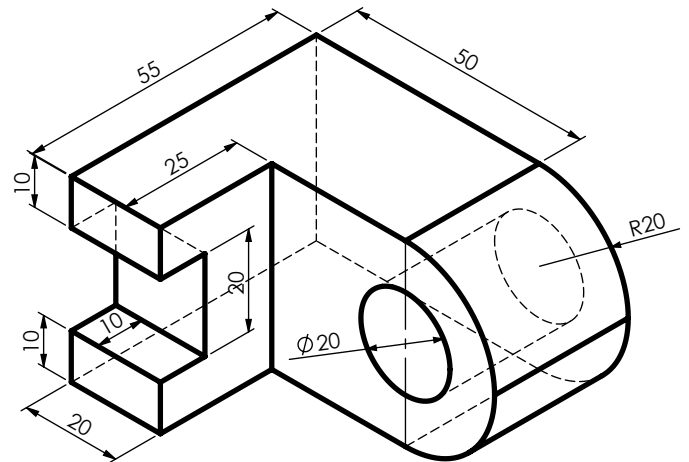
Sketch Entities	: Rectangle(center point),
Feature	: Extrude (mid plane), Extrude cut, Fillet, Chamfer.

Problems1: Draw the following parts

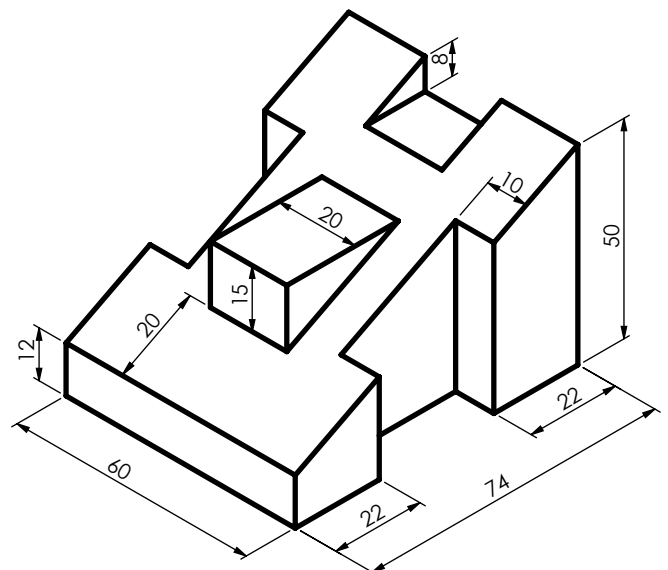
CLASSWORK



(1) (2)

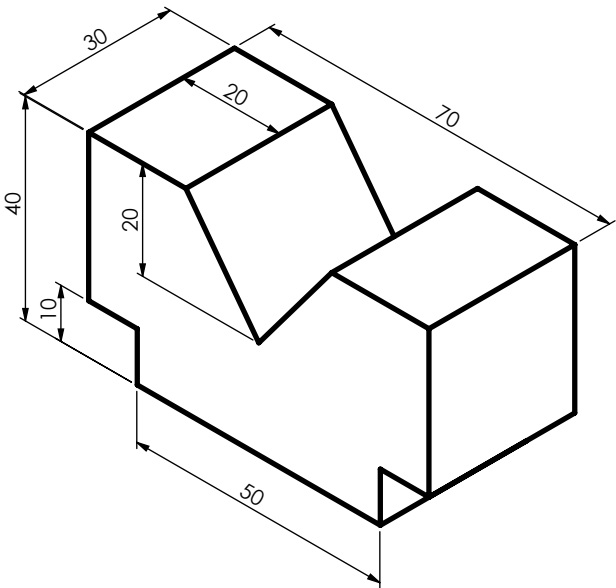
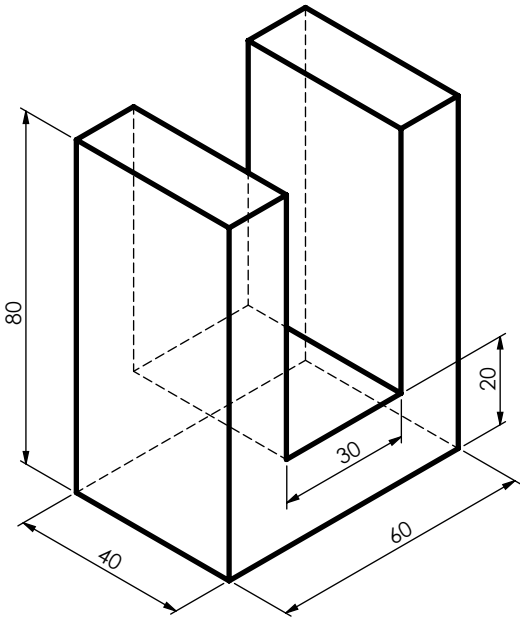


(3) (4)

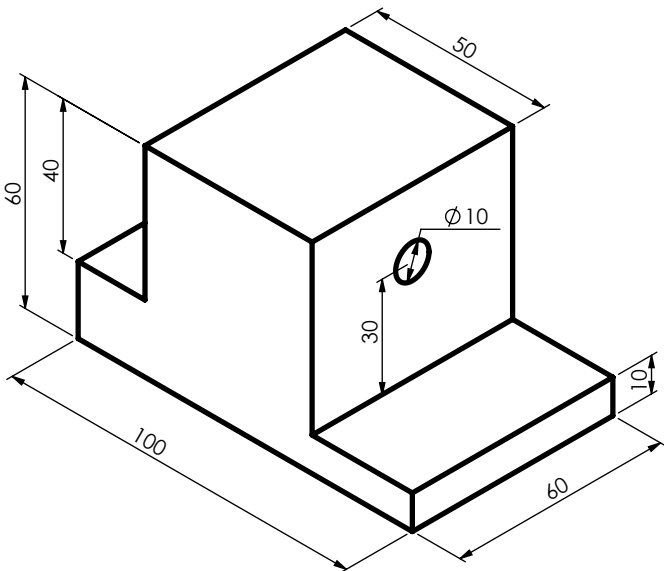
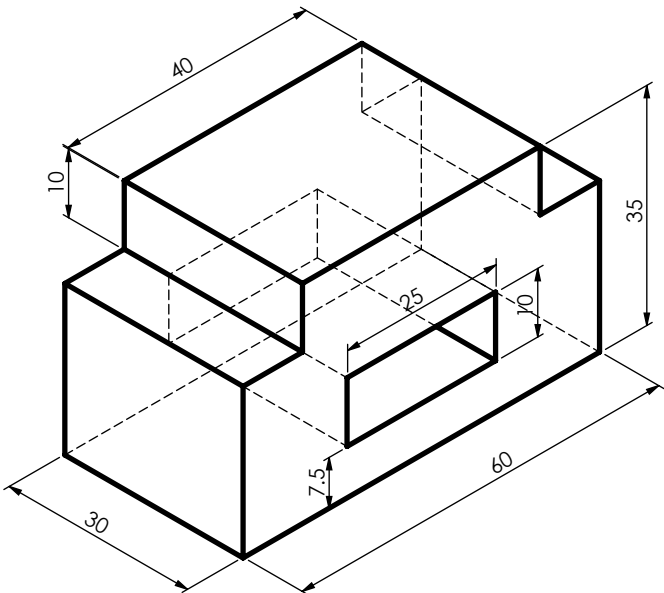


HOMEWORK

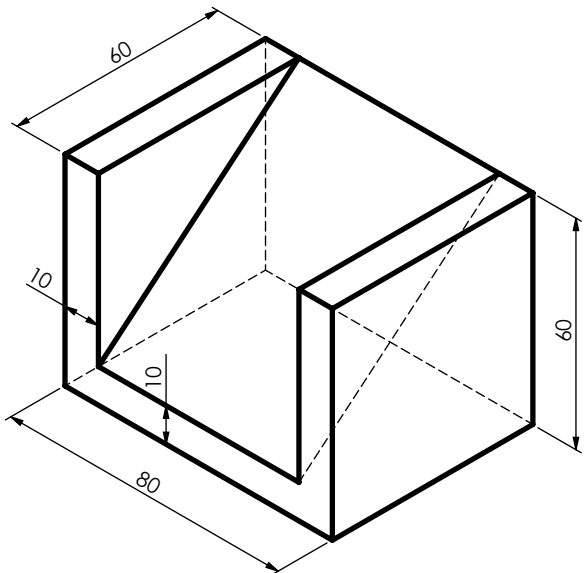
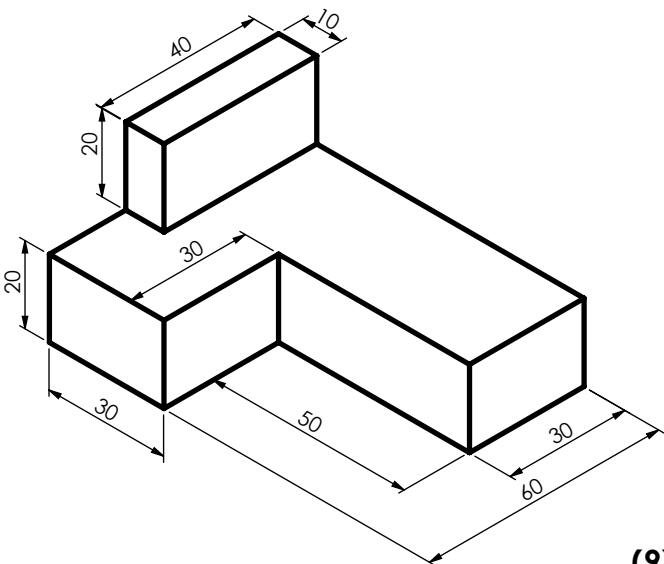
- Level 1



(5) (6)

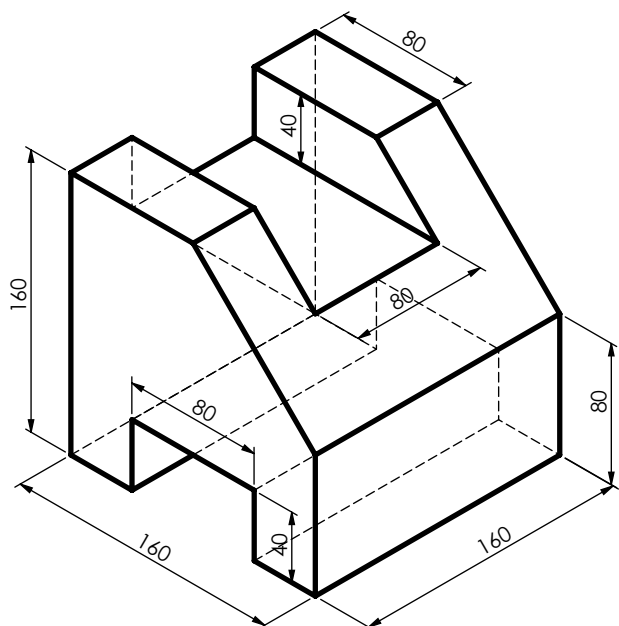


(7) (8)

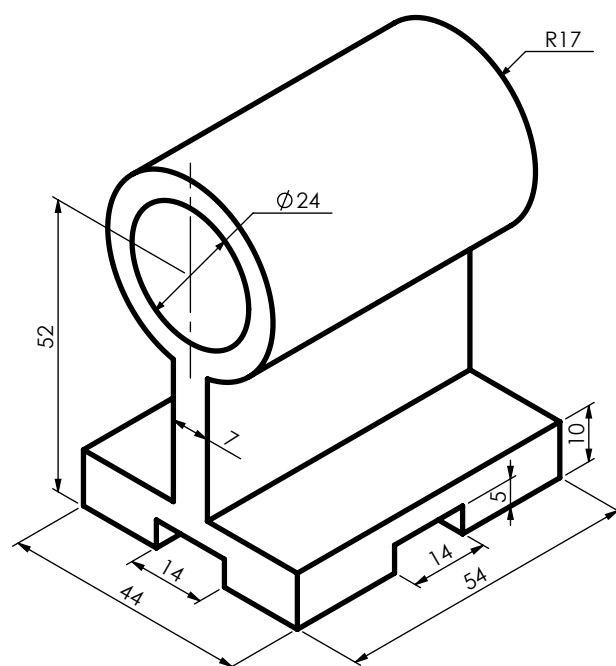


(9) (10)

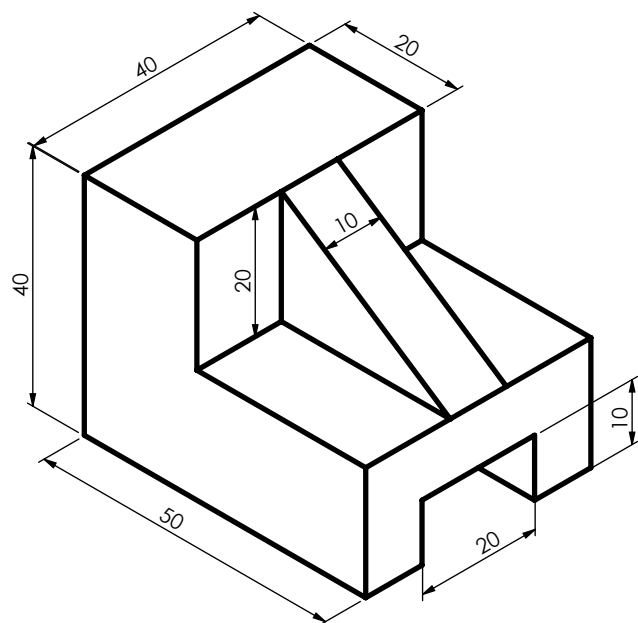
- Level 2



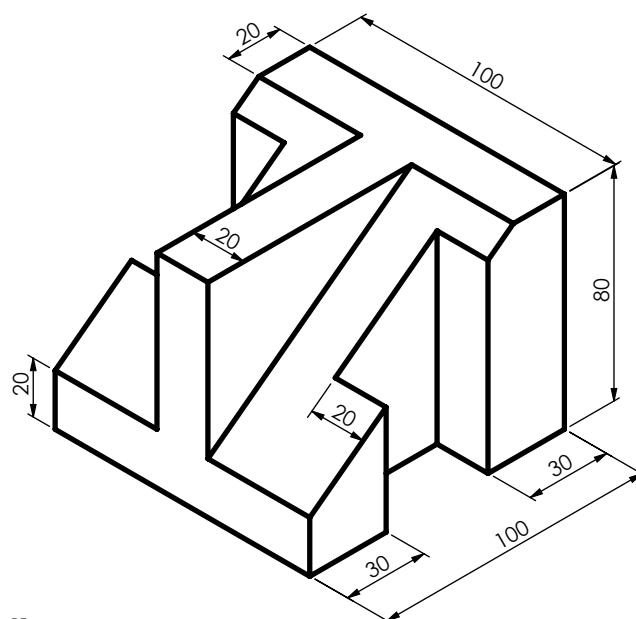
(11) | (12)



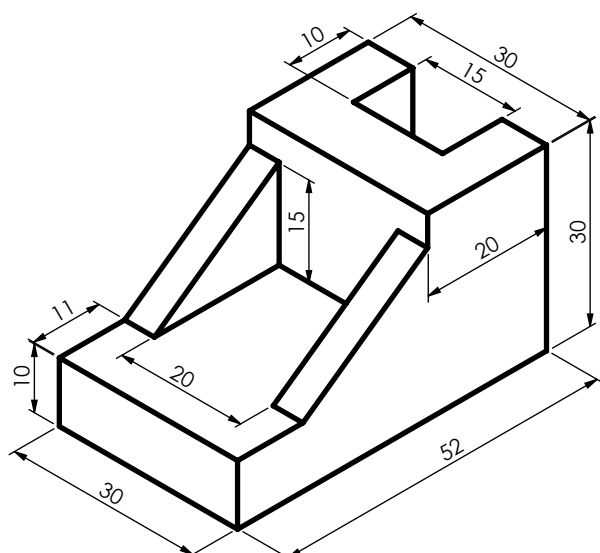
(11) | (12)



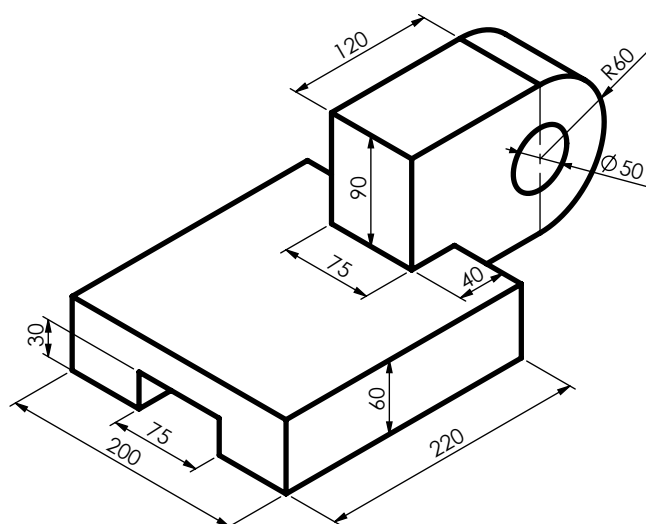
(13) | (14)



(13) | (14)

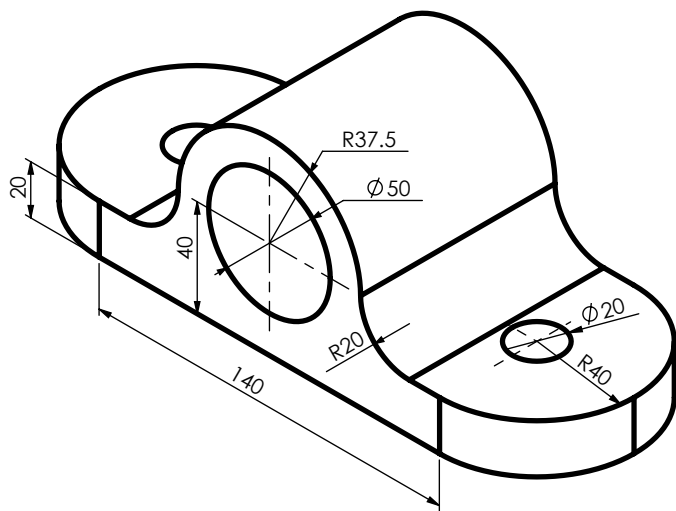


(15) | (16)

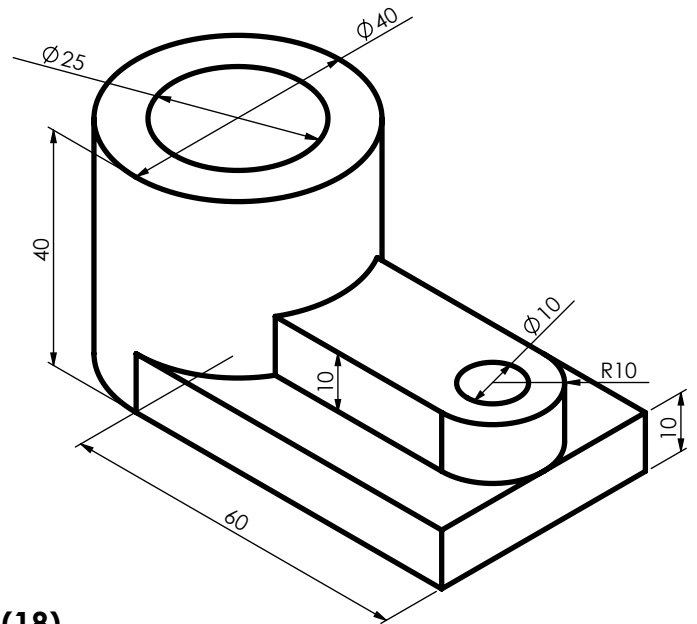


(15) | (16)

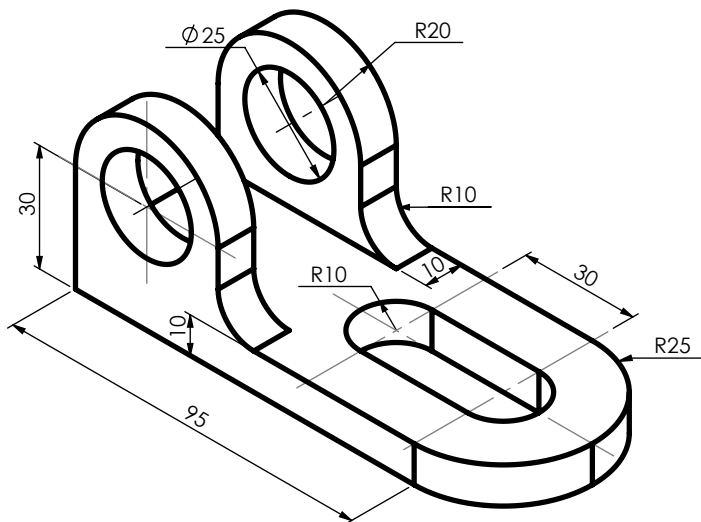
- Level 3



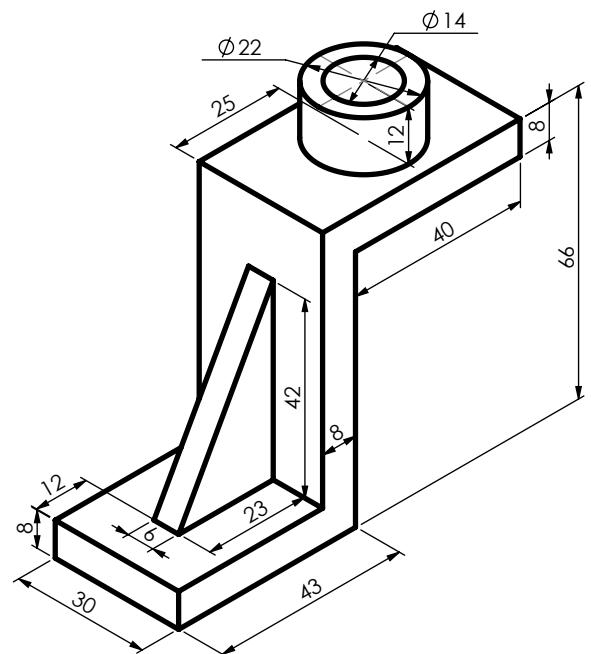
(17)



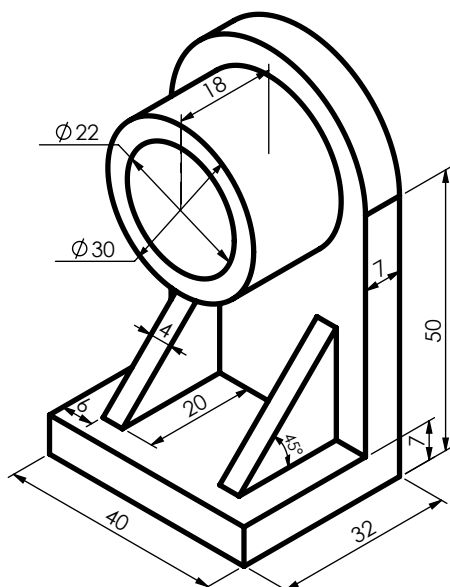
(18)



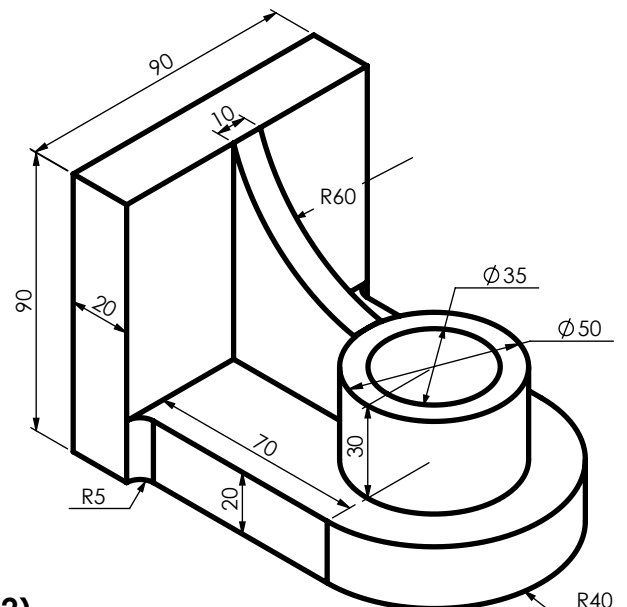
(19)



(20)



(21)

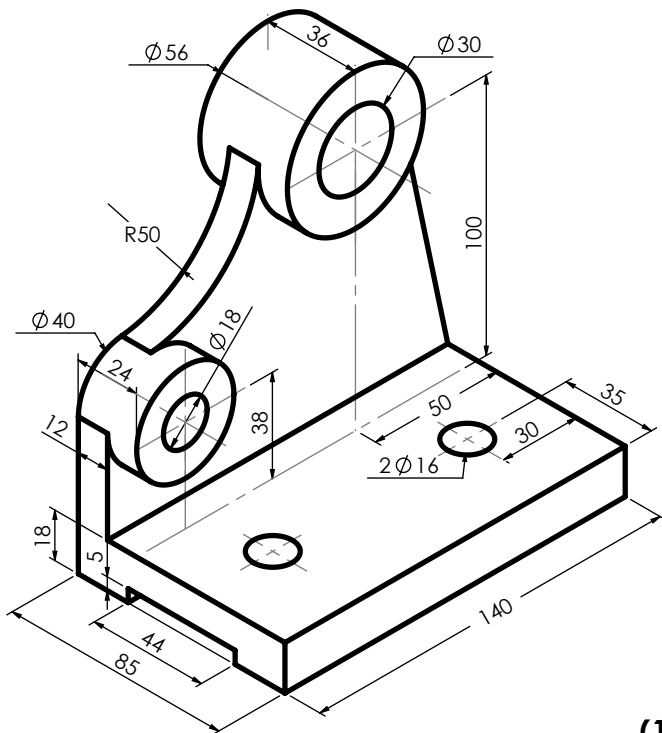


(22)

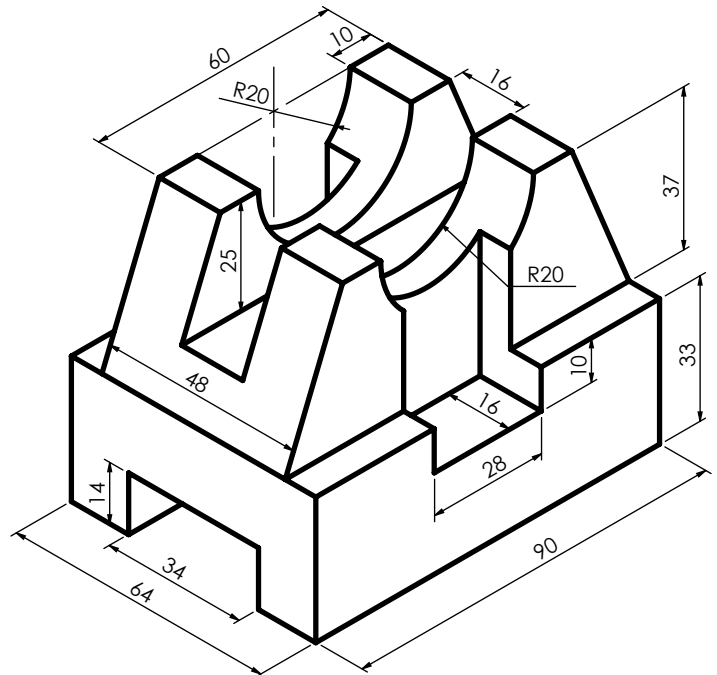
Sketch Entities :	
Sketch Tools :	<i>convert entries, offset</i>
Feature :	<i>Rib, Reference geometry, Mirror feature, Contour Selection.</i>

Problems1: Draw the following parts with the same dimension.

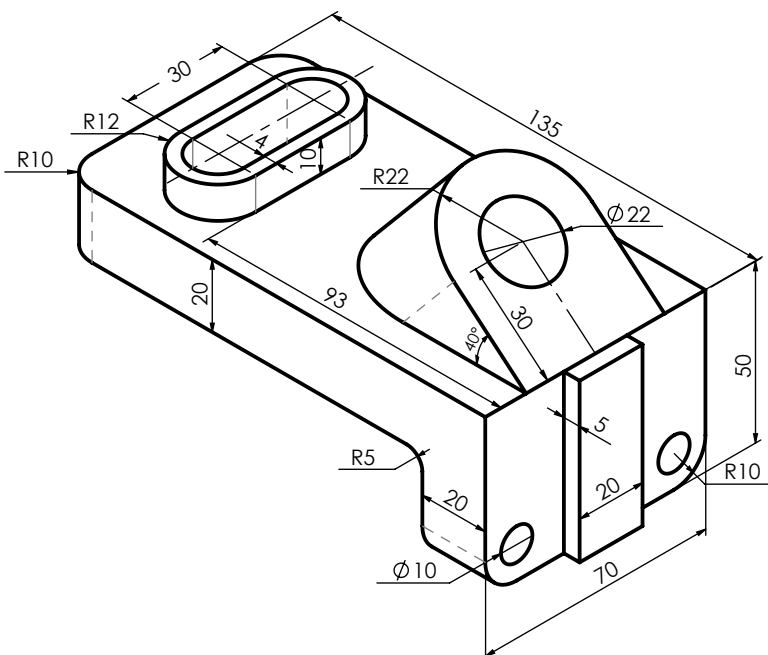
CLASSWORK



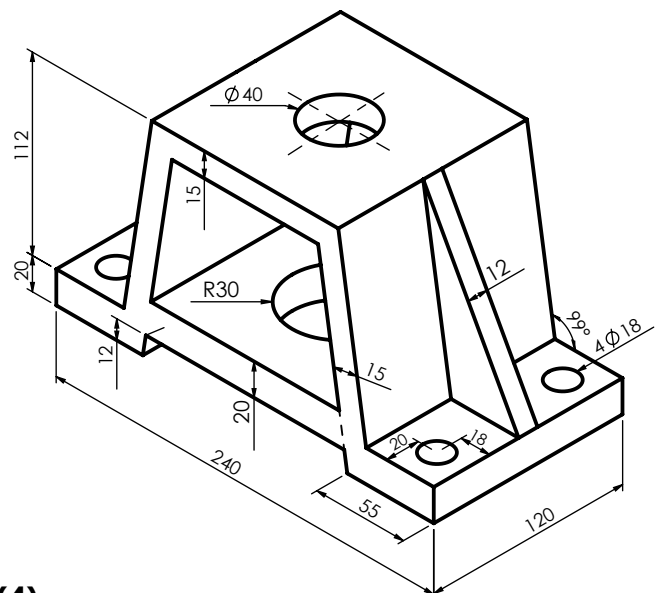
(1)



(2)



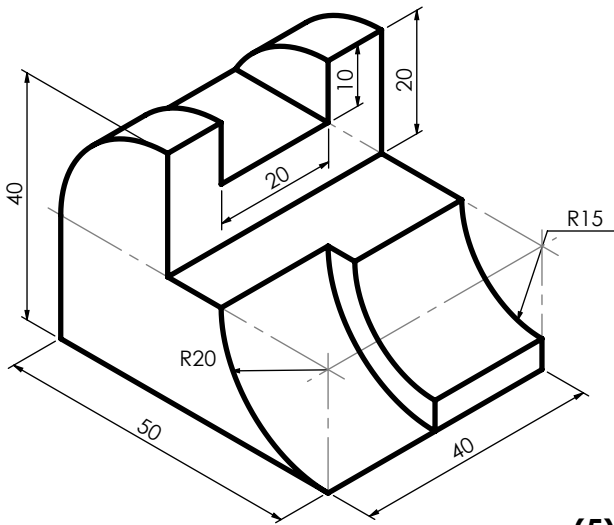
(3)



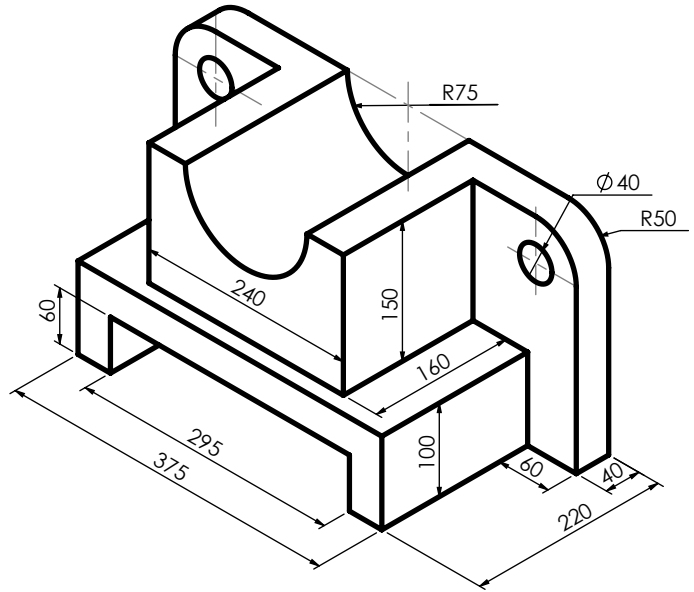
(4)

HOMEWORK

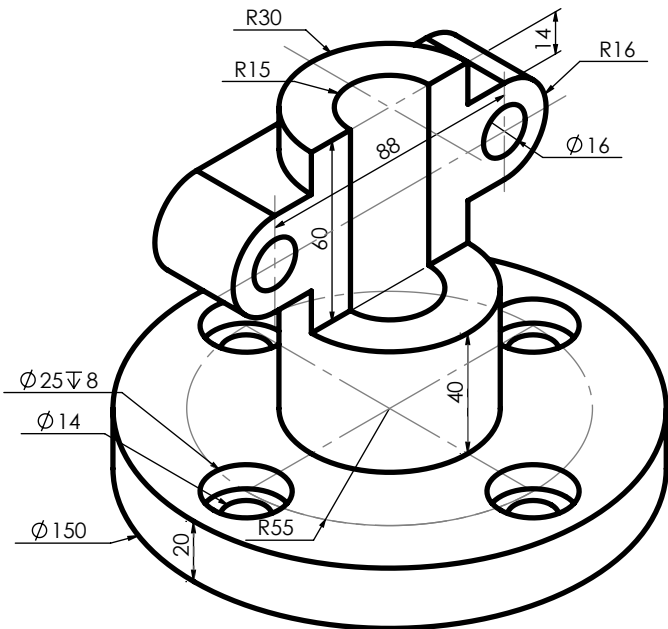
- Level 1



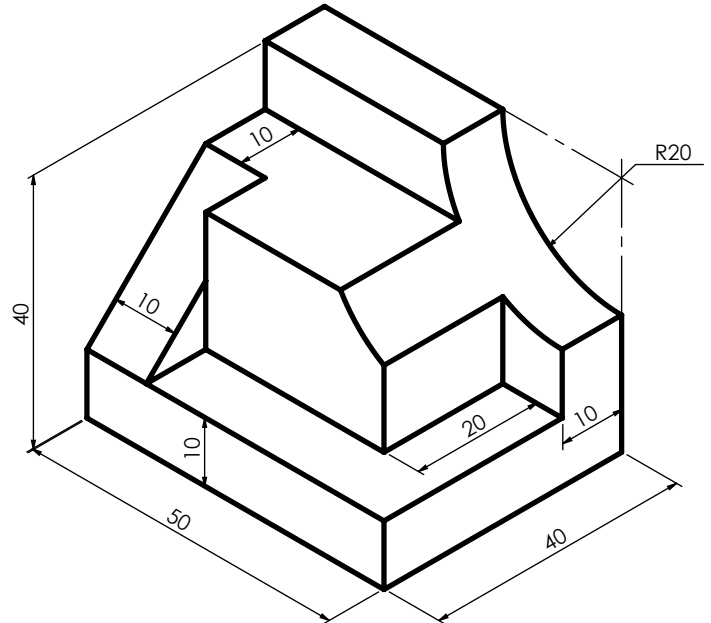
(5)



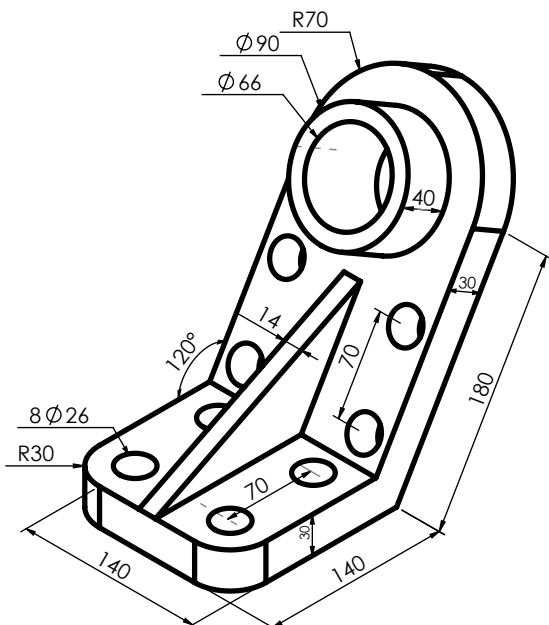
(6)



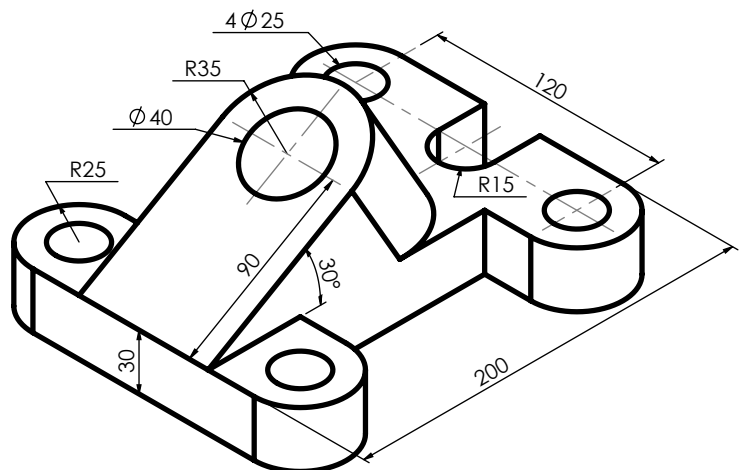
(7)



(8)

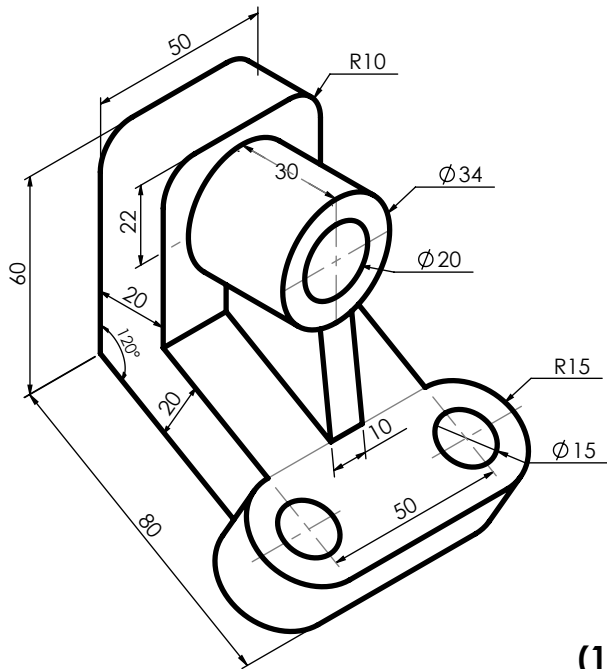


(9)

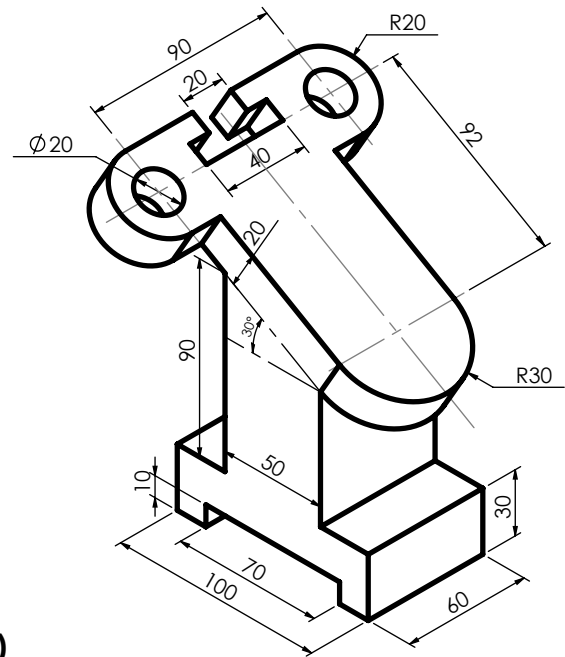


(10)

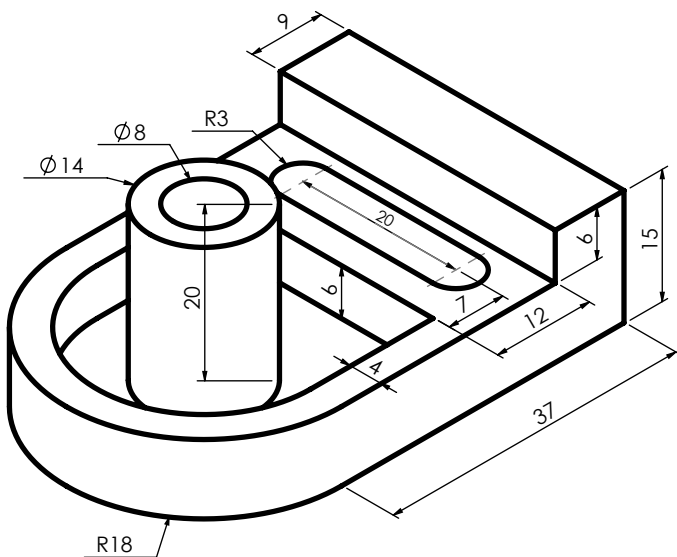
- Level 2



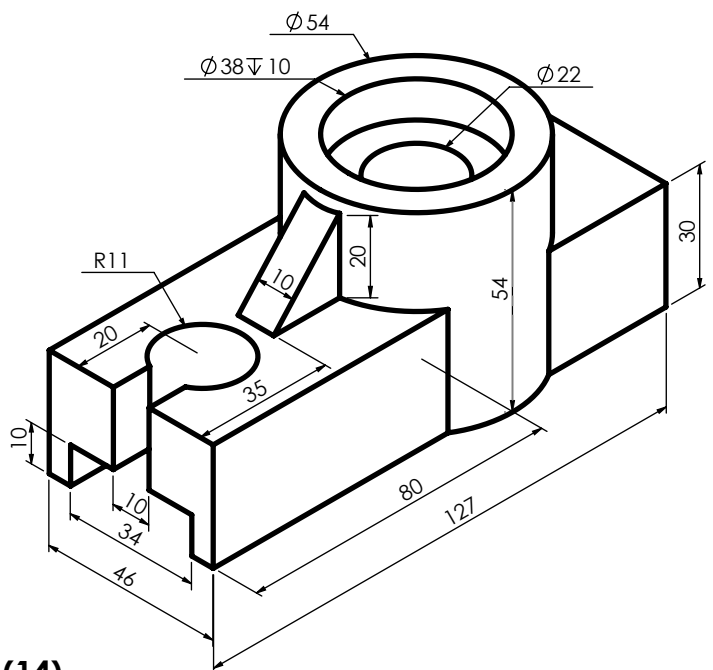
(11)



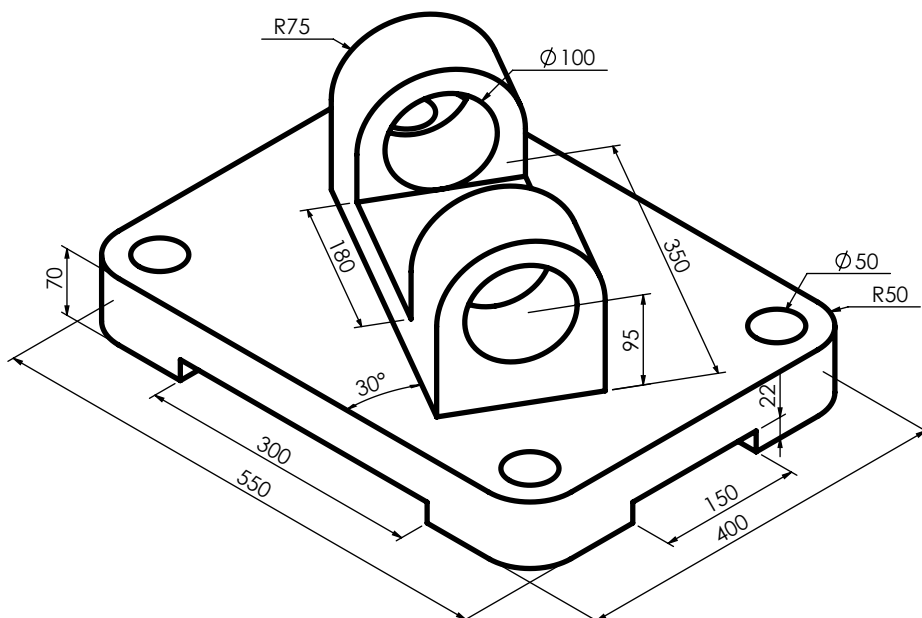
(12)



(13)

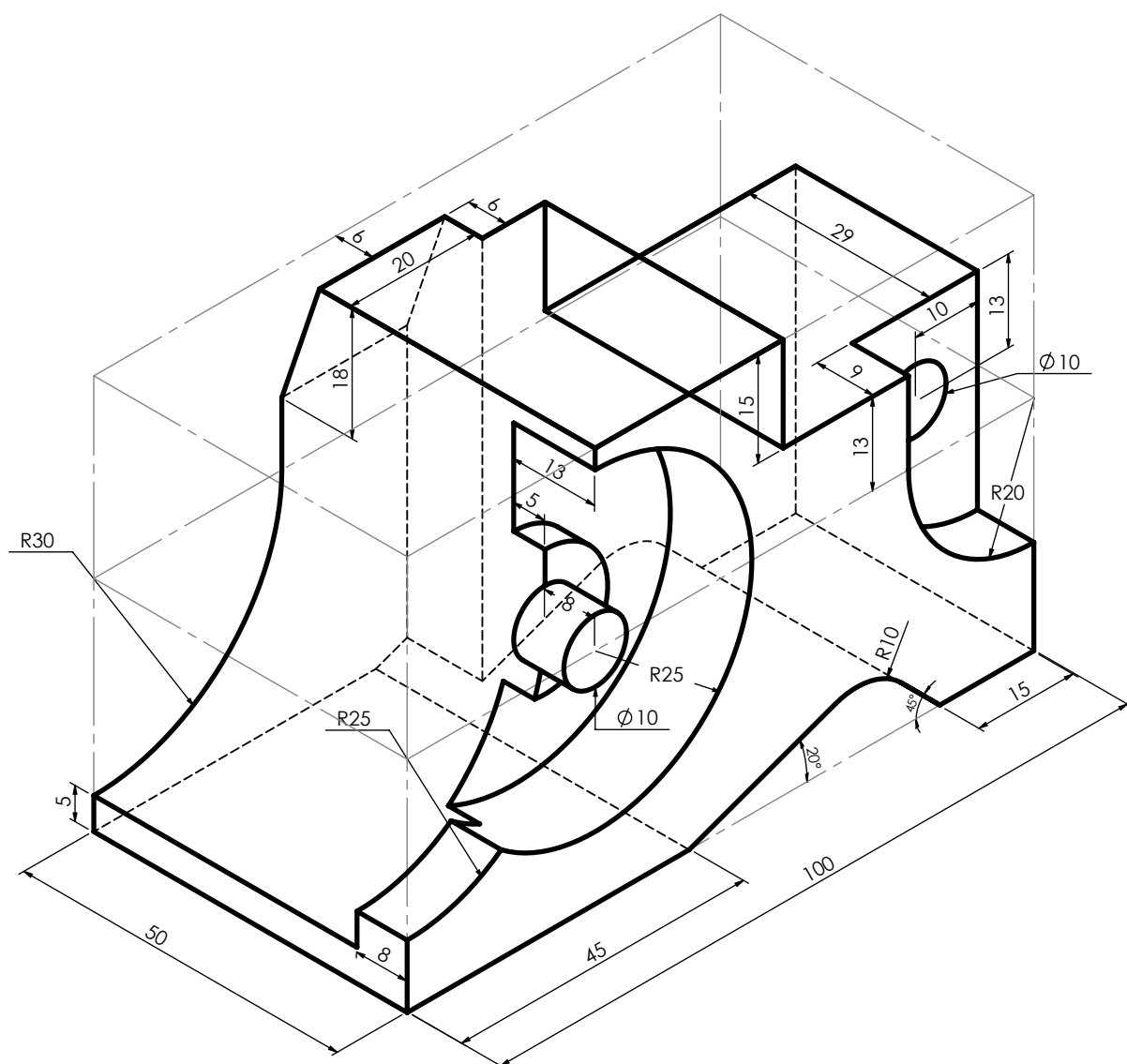


(14)

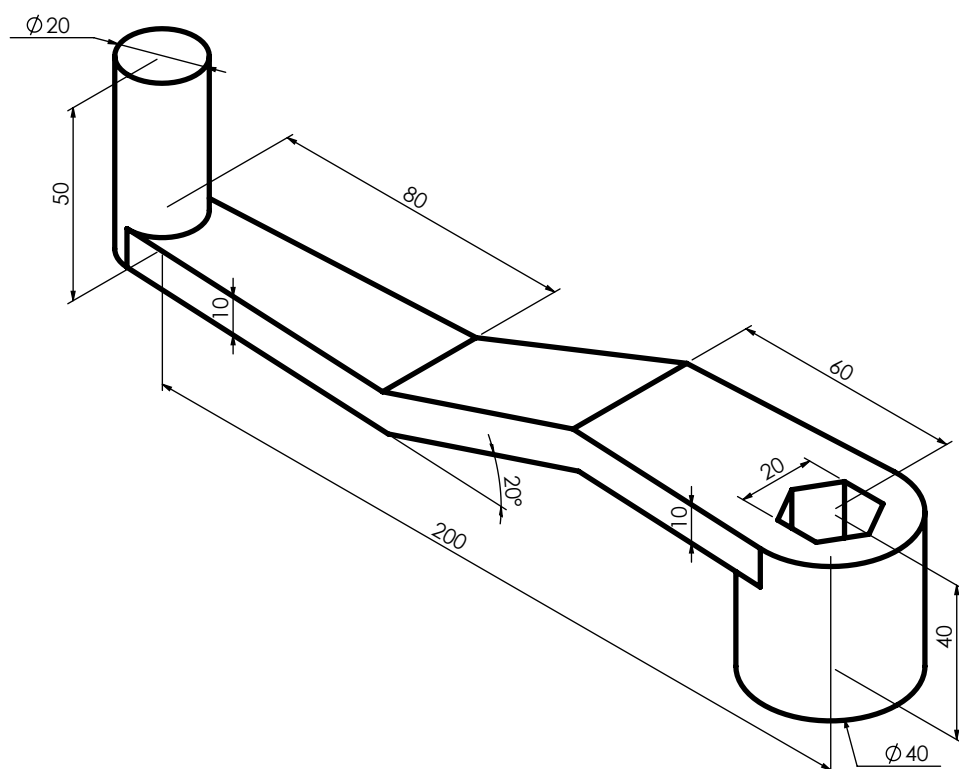


(15)

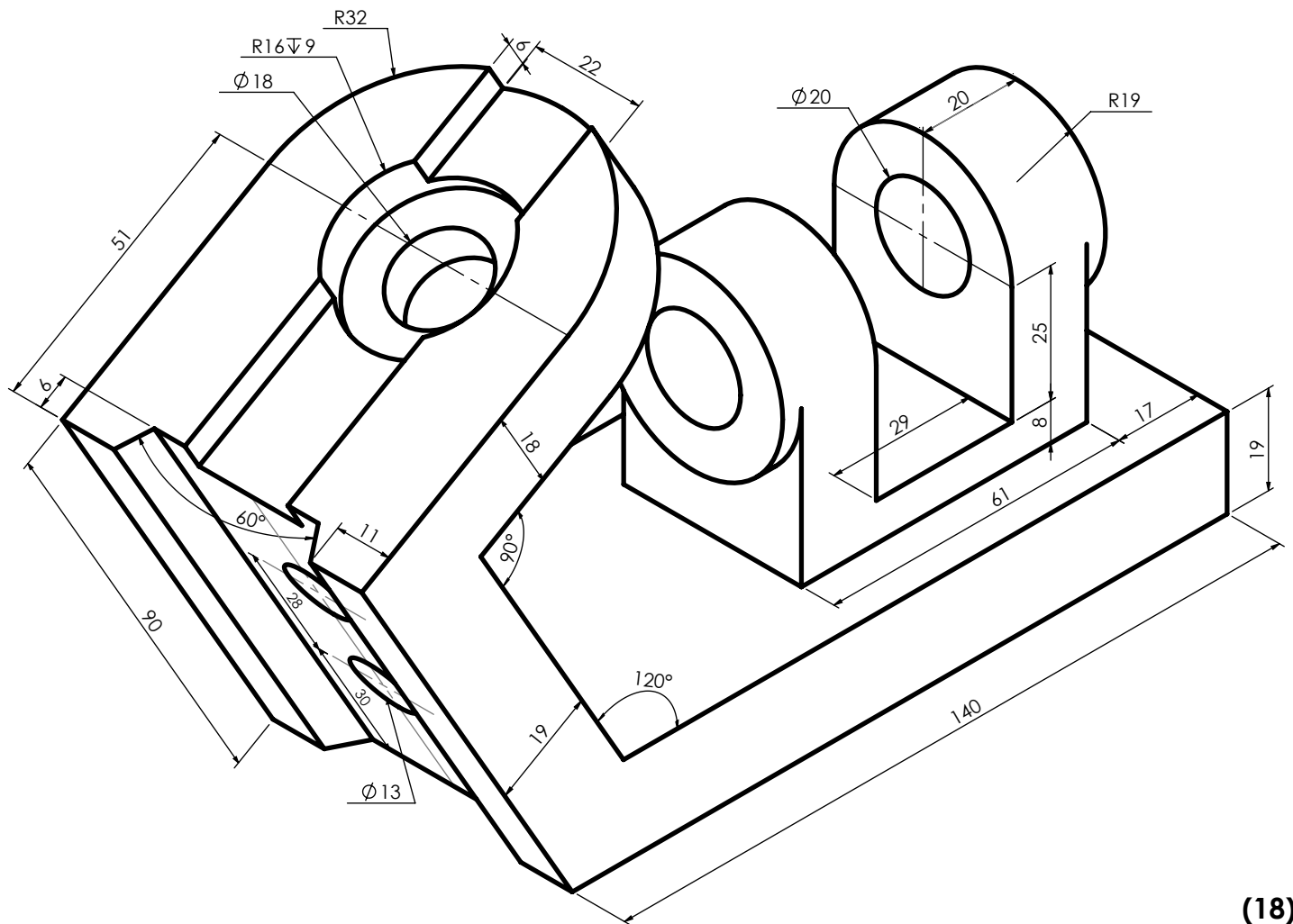
- Level 3



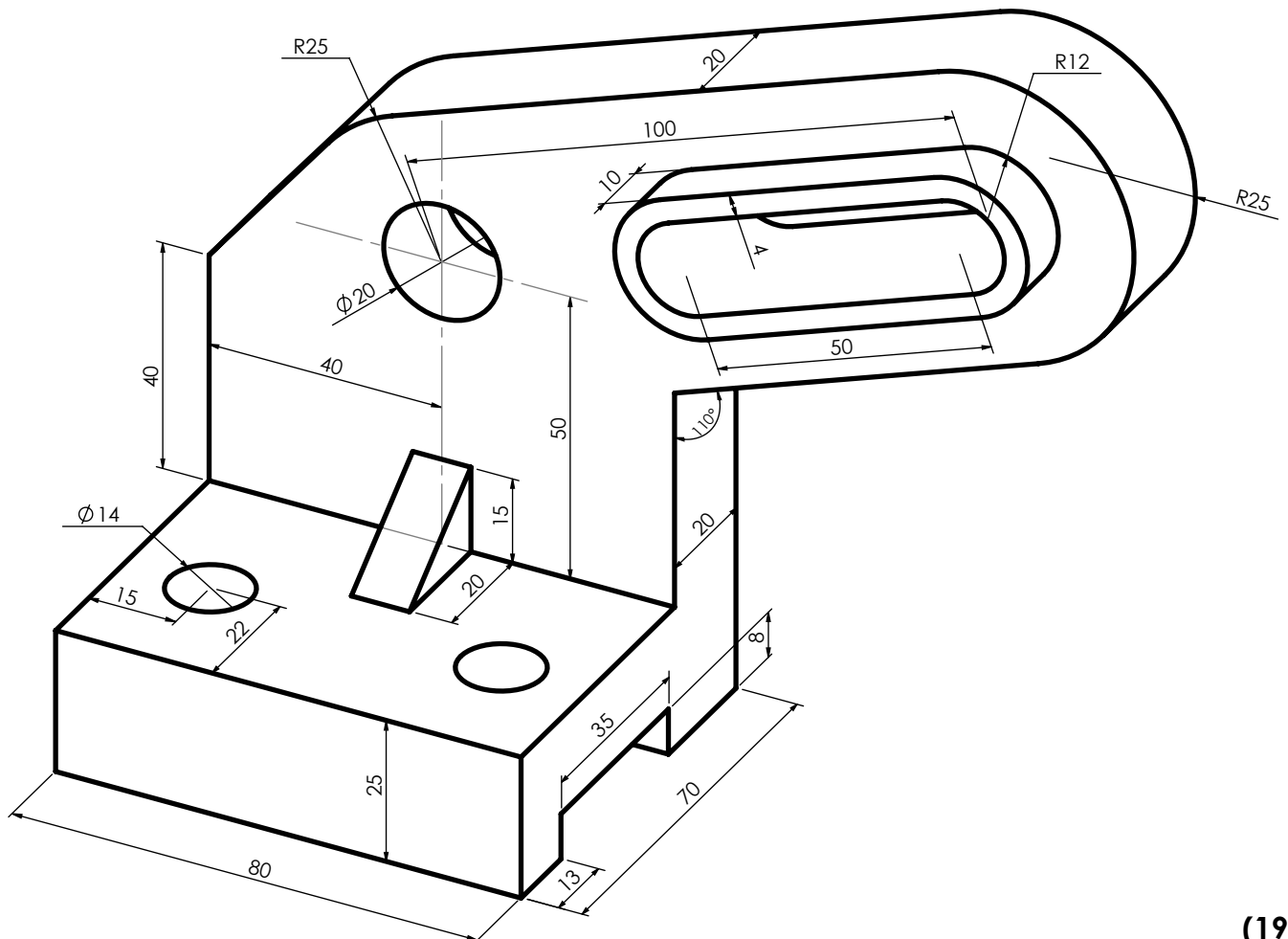
(16)



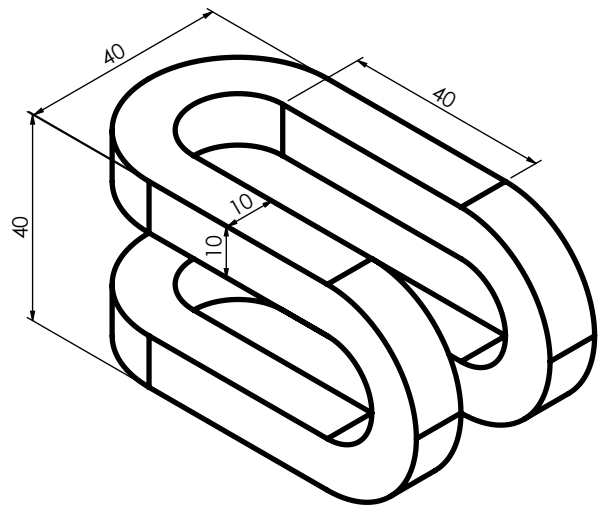
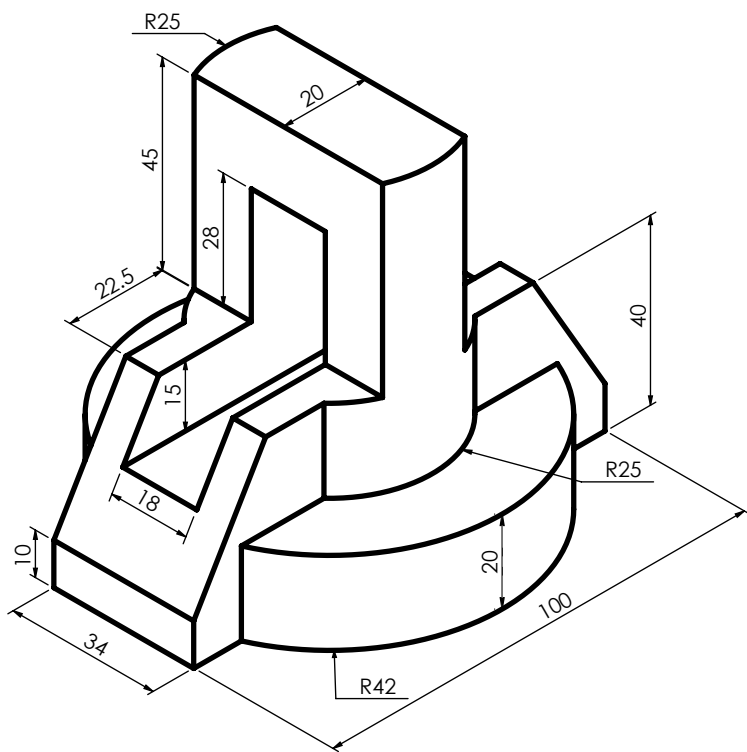
(17)



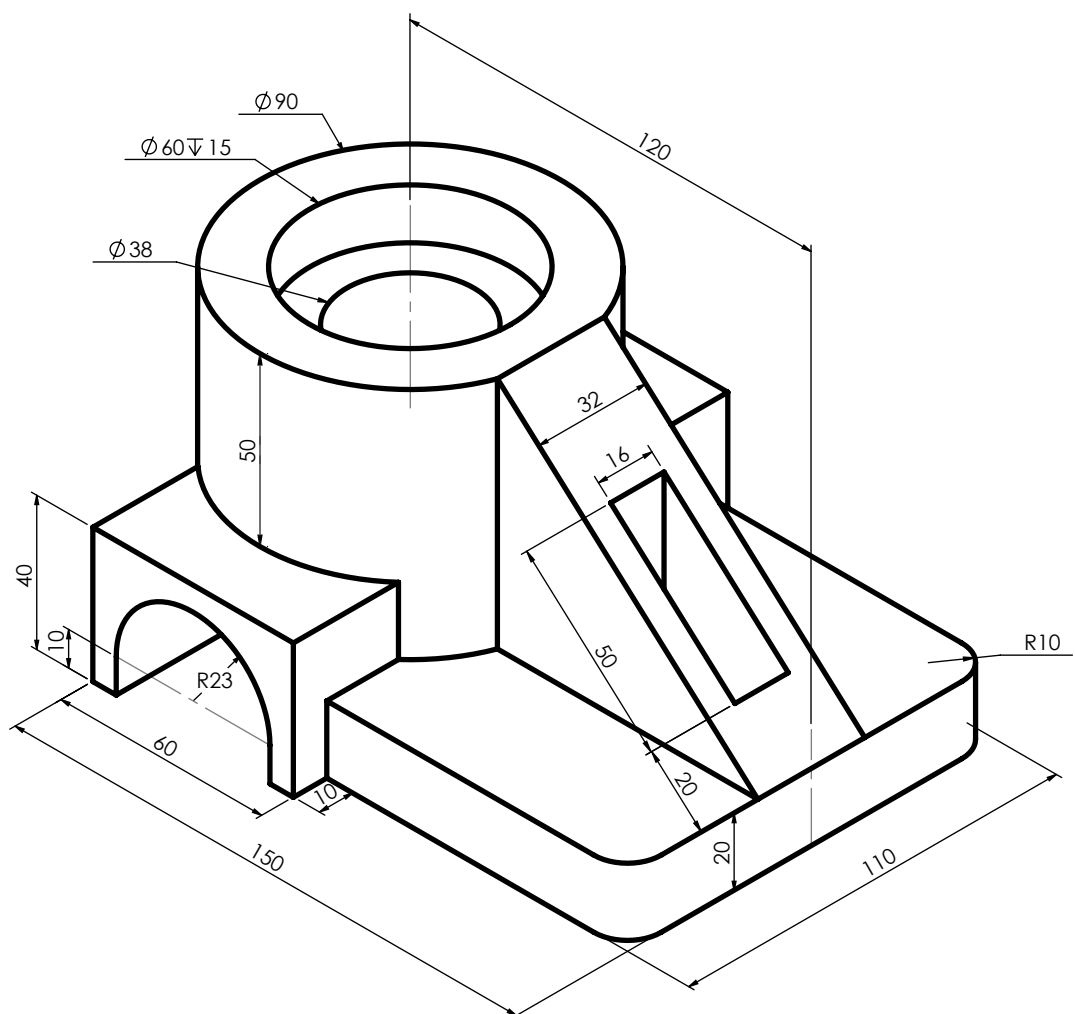
(18)



(19)



(20) (21)



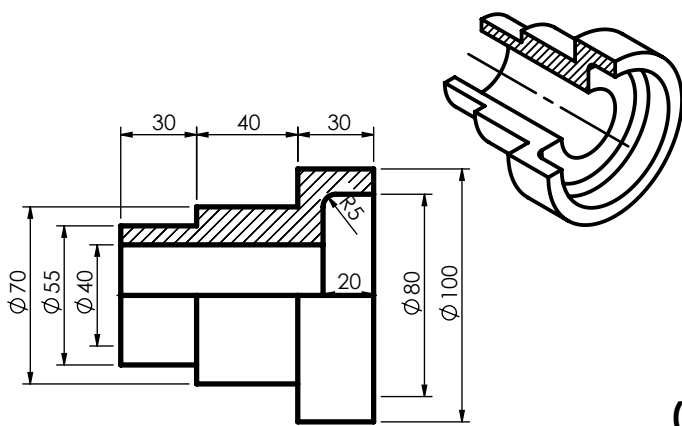
(22)

Sketch Entities:

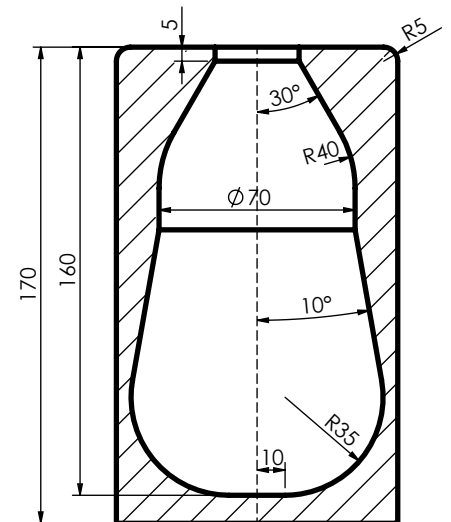
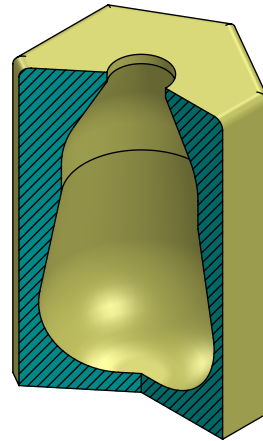
Sketch Tools :

Feature : *Revolve , Revolve cut, Shell.***Problem1: Draw the following 3D model with the same dimension.**

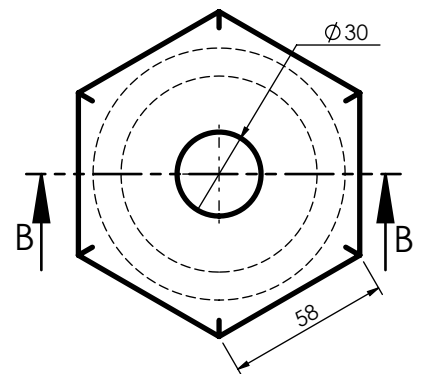
CLASSWORK



(1)

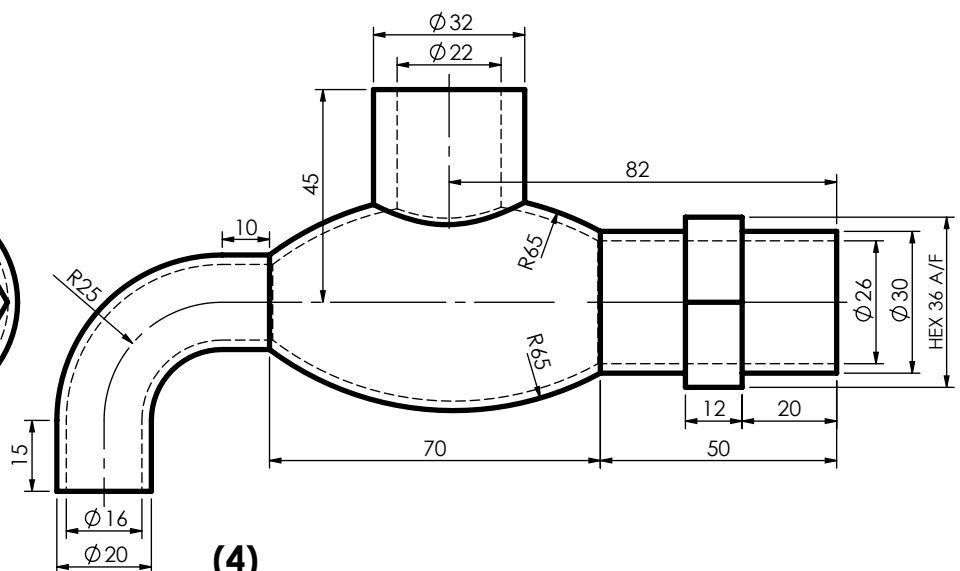
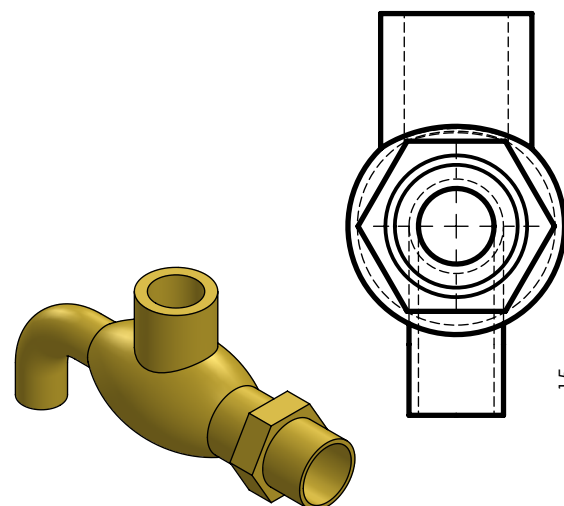
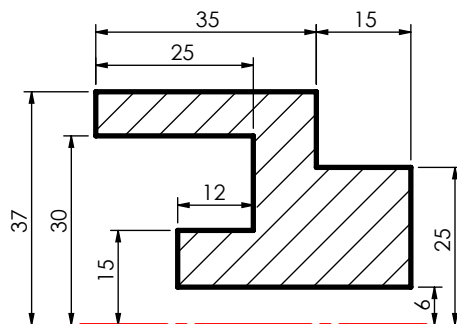
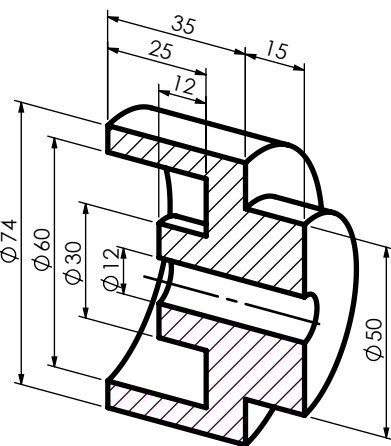


SECTION B-B



(2)

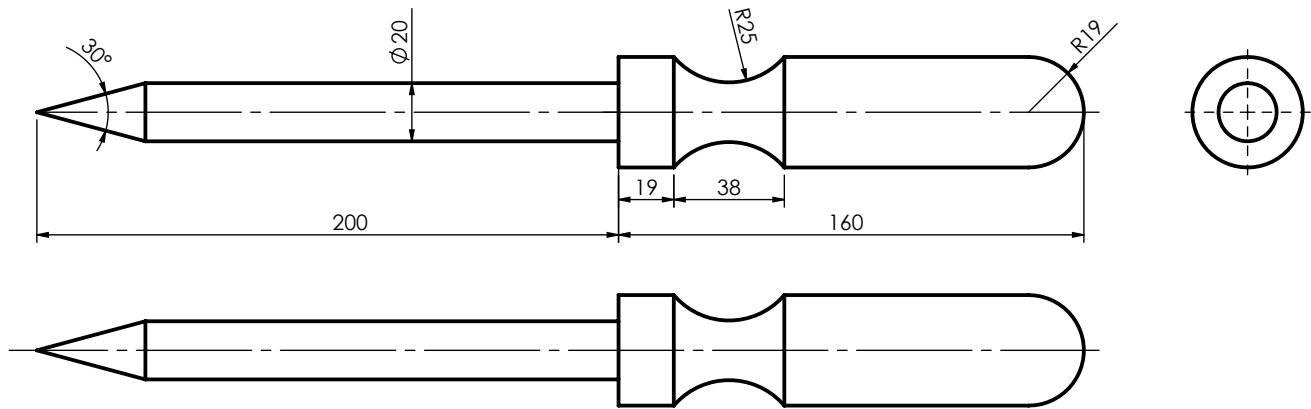
(3)



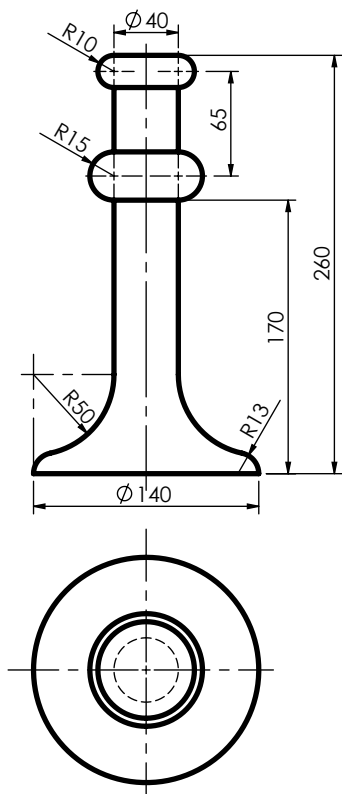
(4)

HOMework

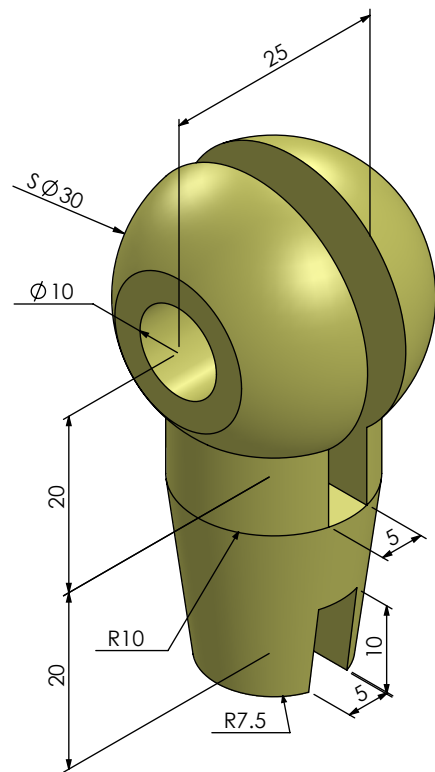
- Level 1



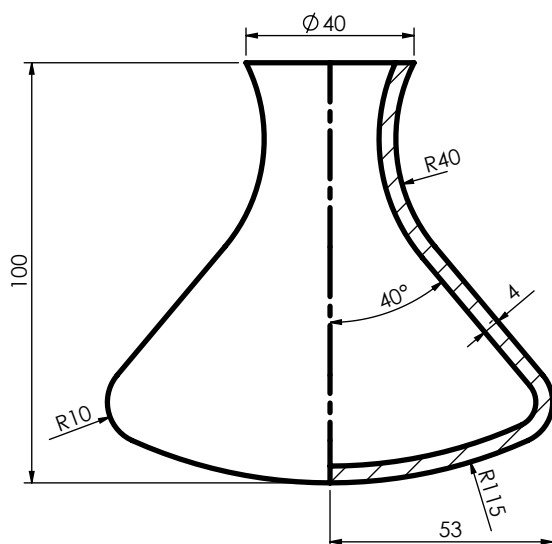
(5)



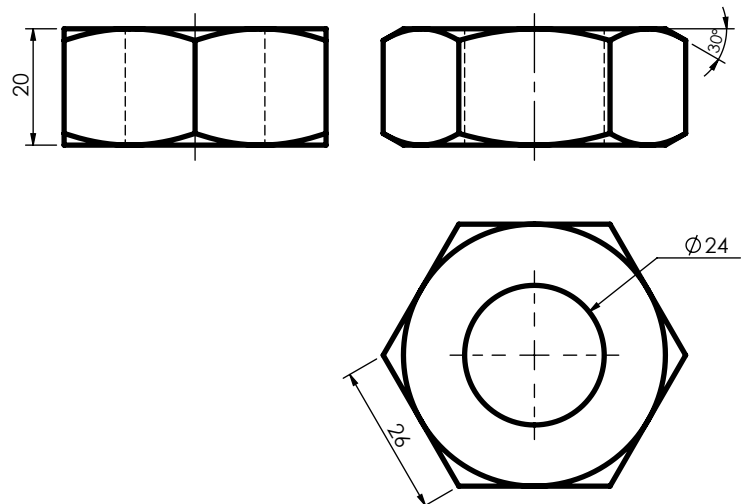
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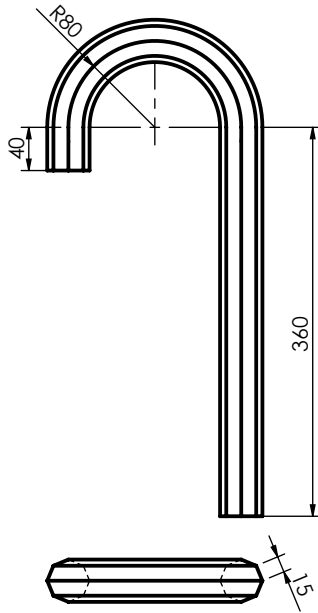
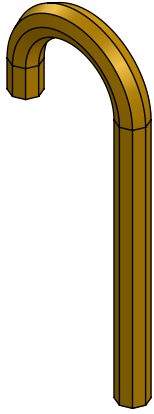
(7)



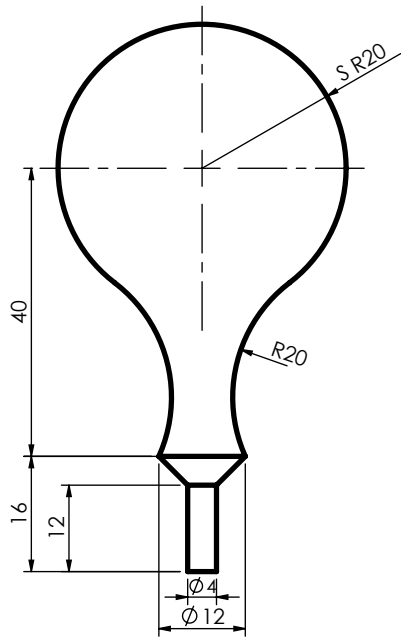
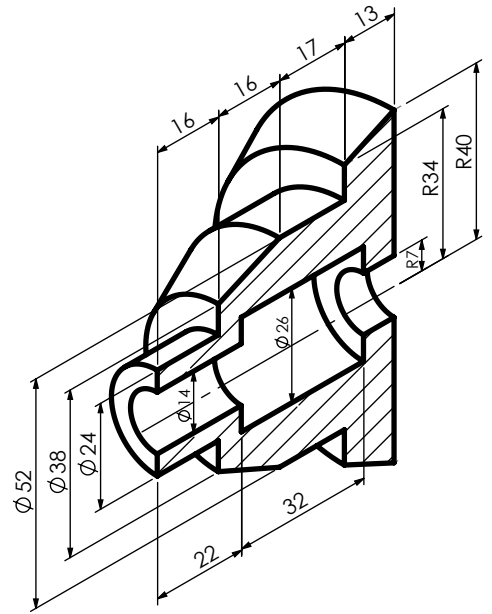
(8)



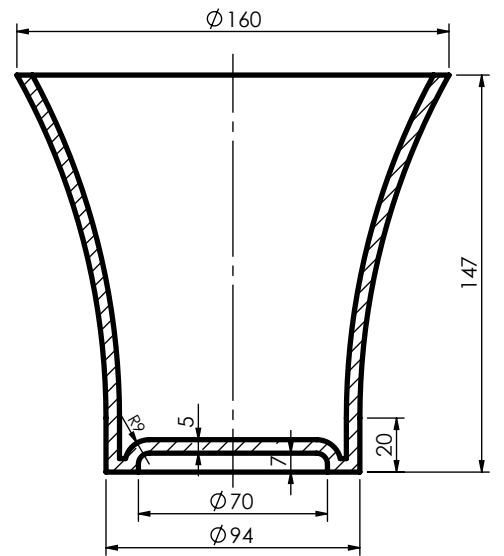
(9)



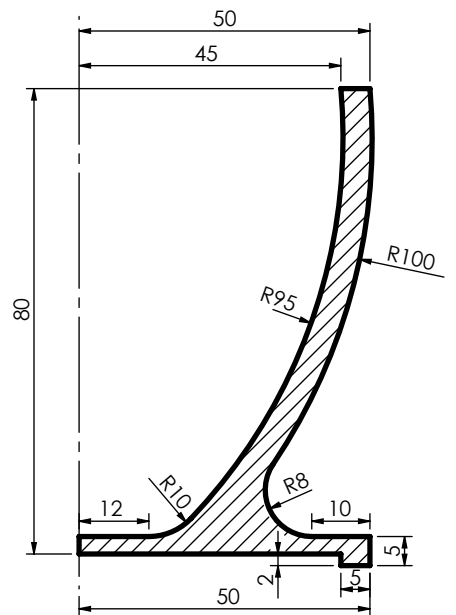
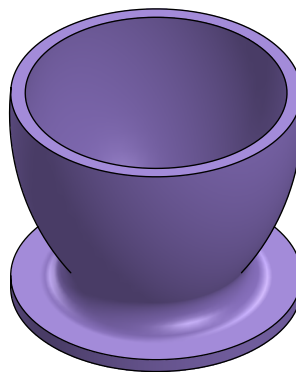
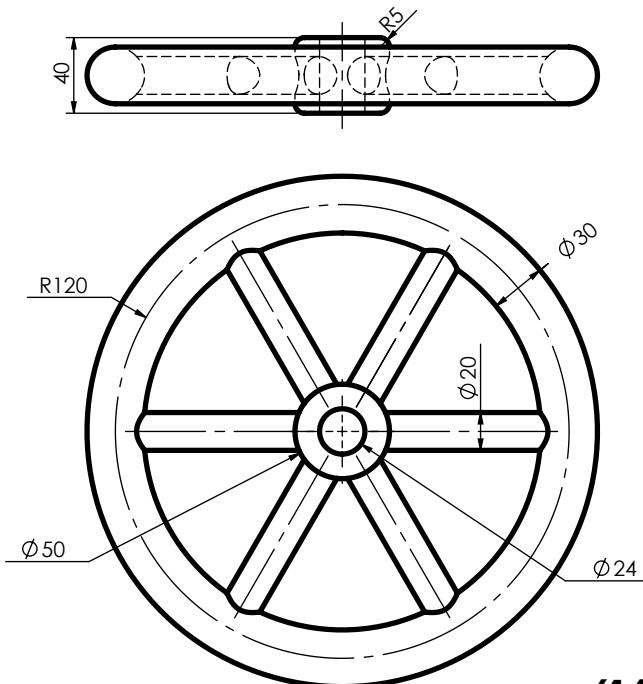
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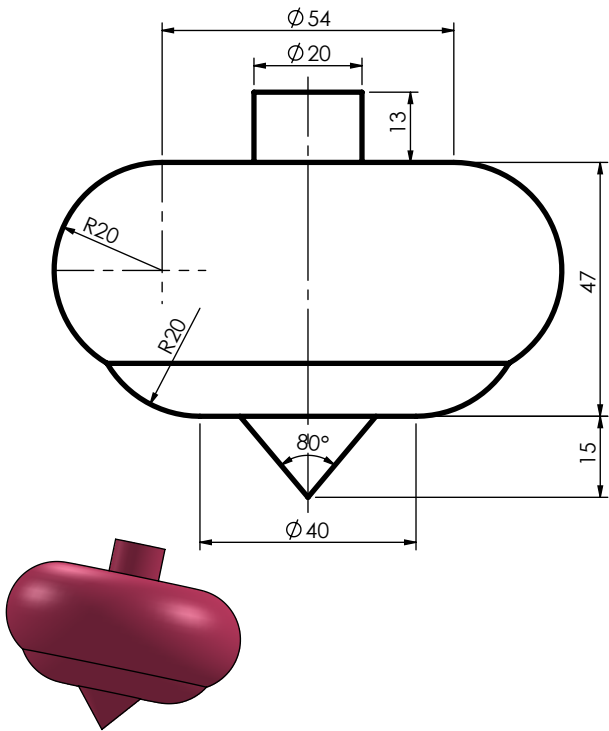


(12) (13)

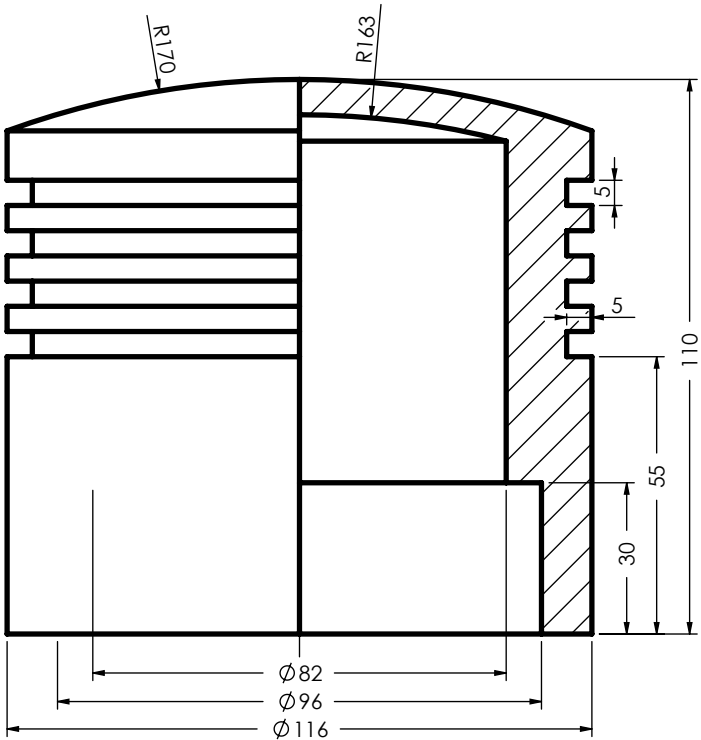


(14) (15)

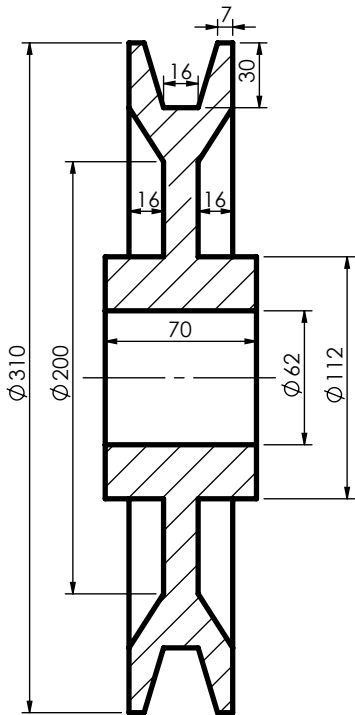




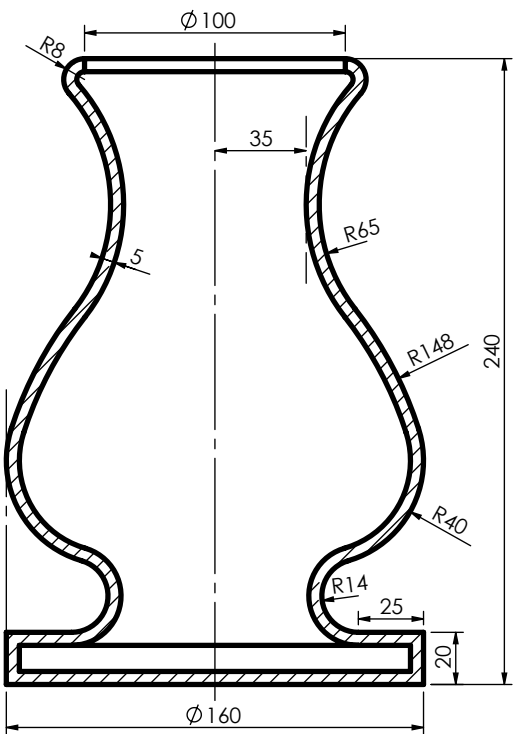
(16)



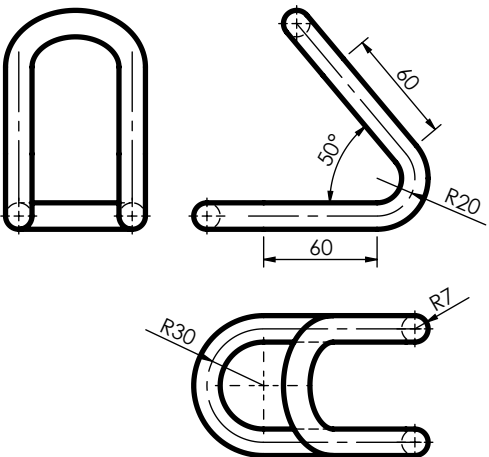
(17)



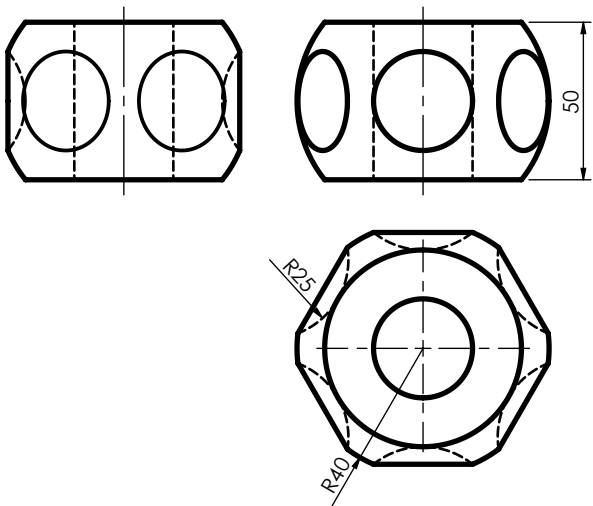
(18)



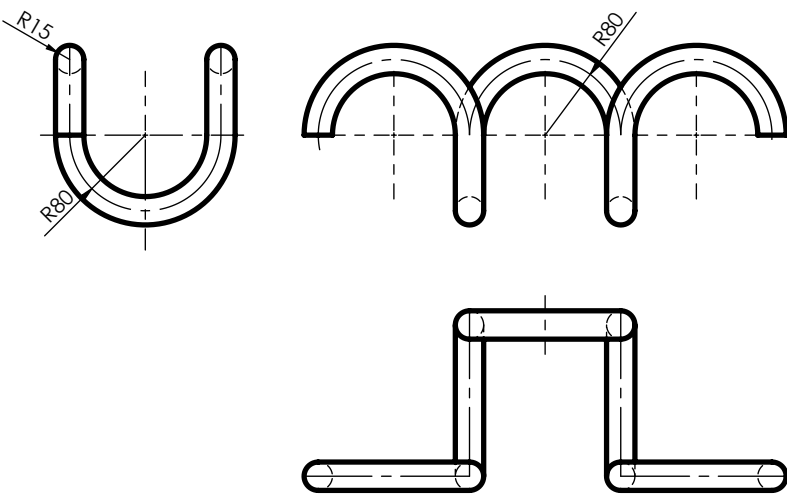
(19)



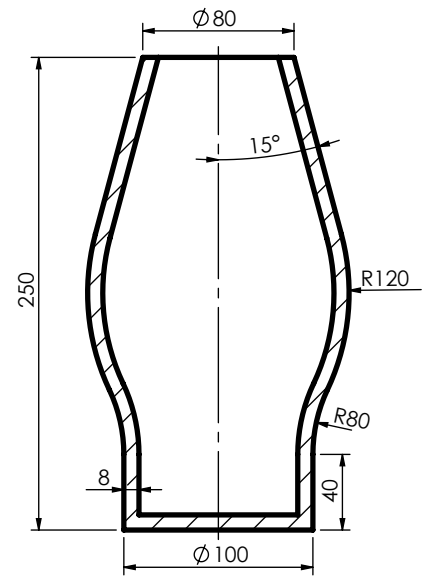
(20)



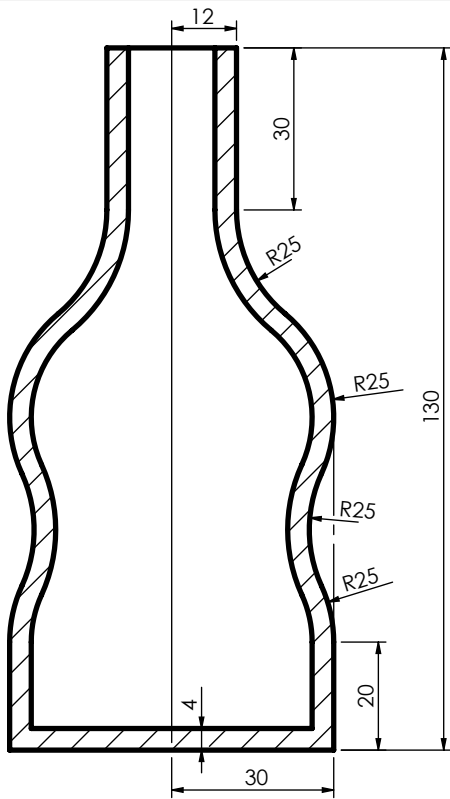
(21)



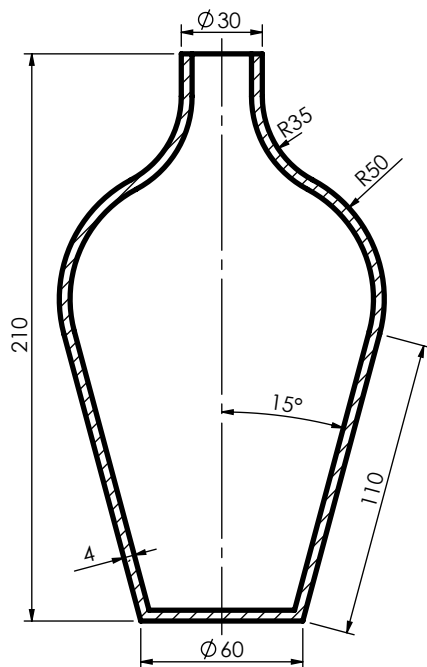
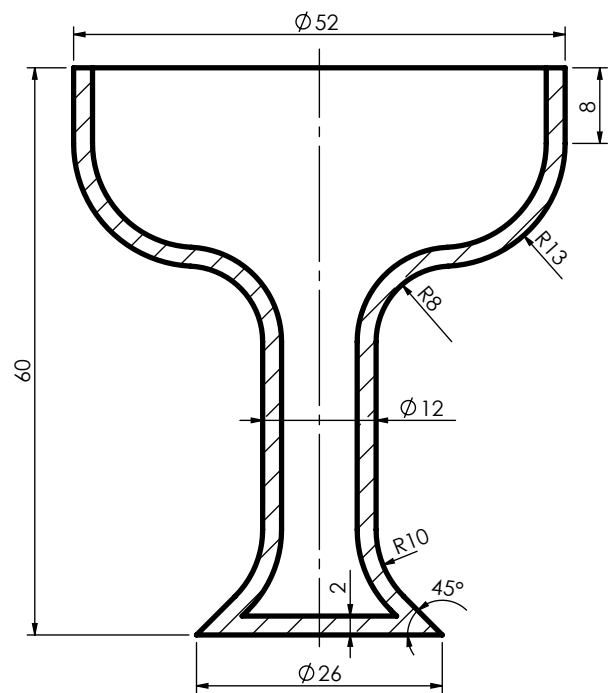
(22)



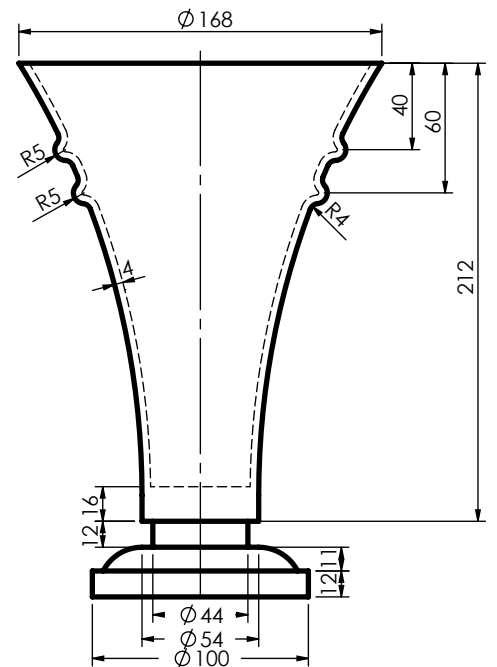
(23)

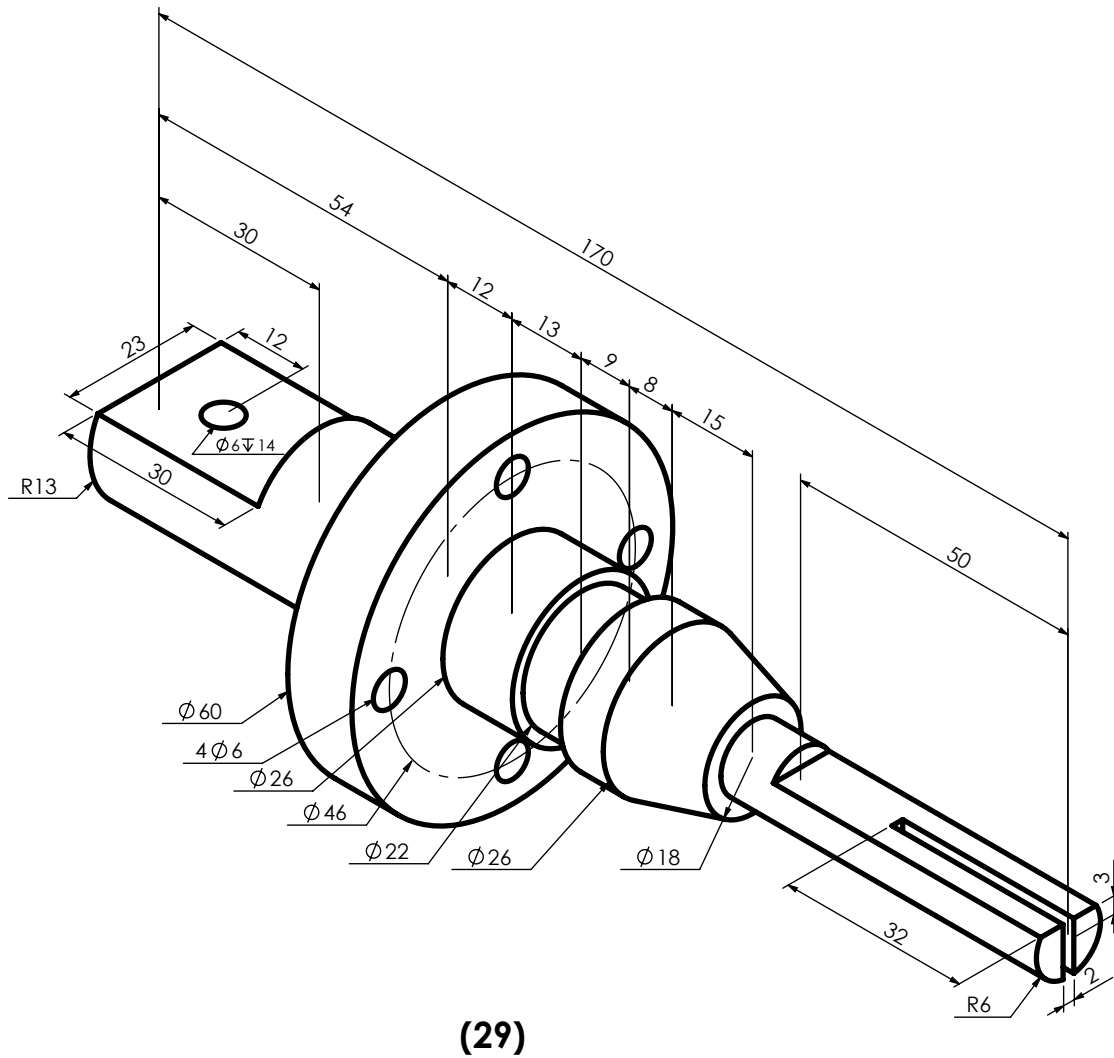
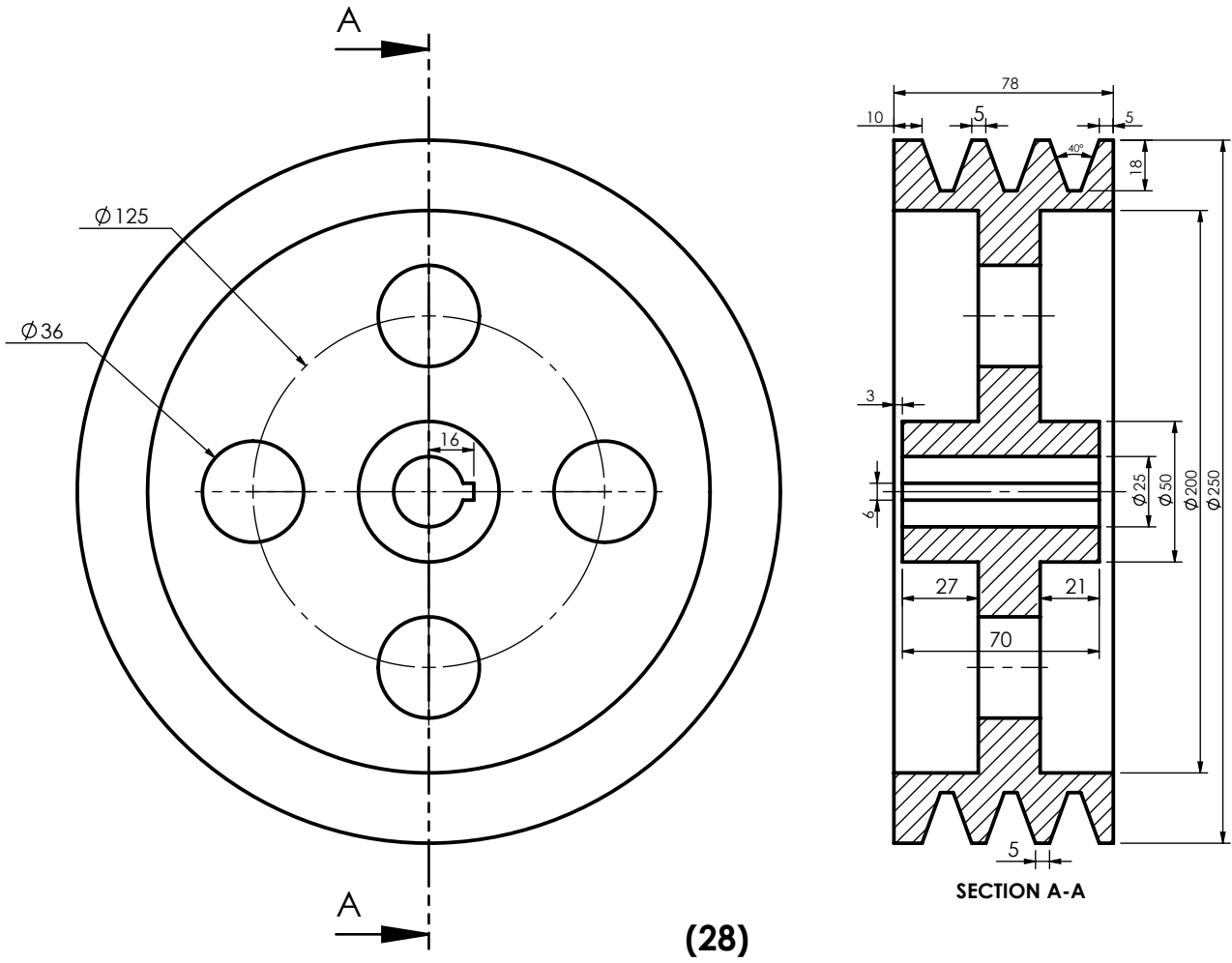


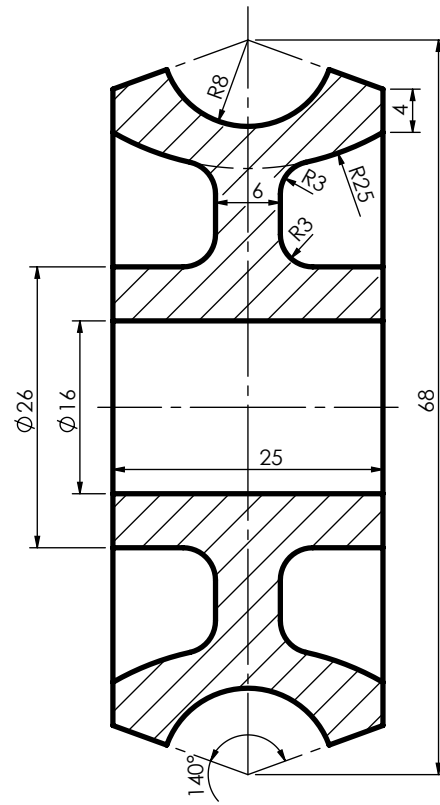
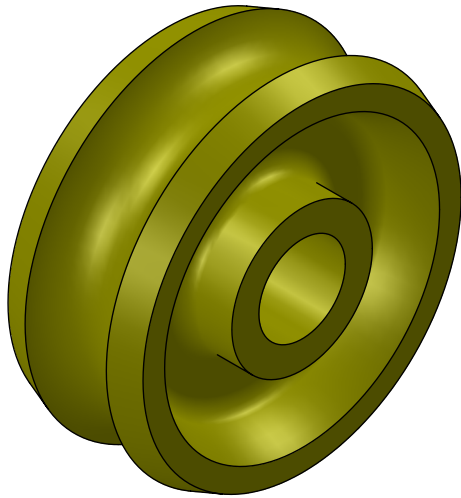
(24) (25)



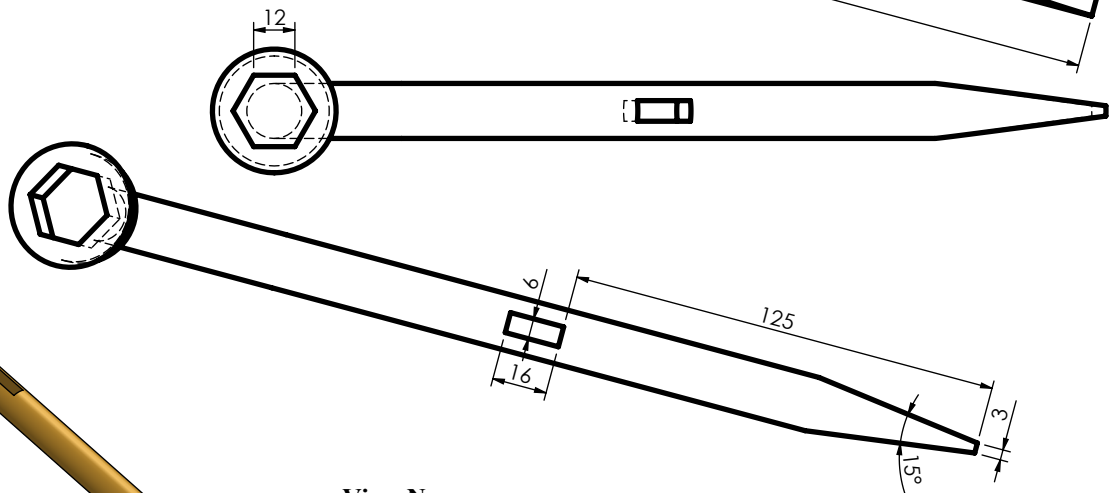
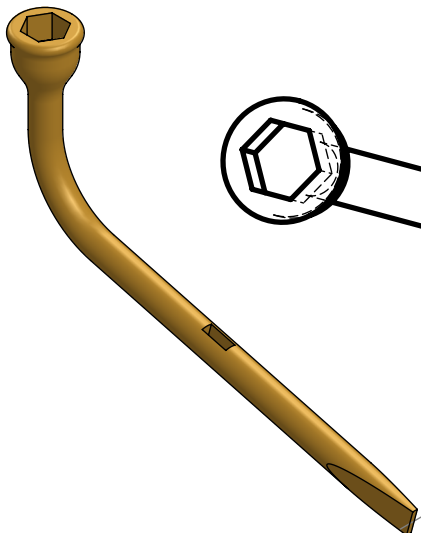
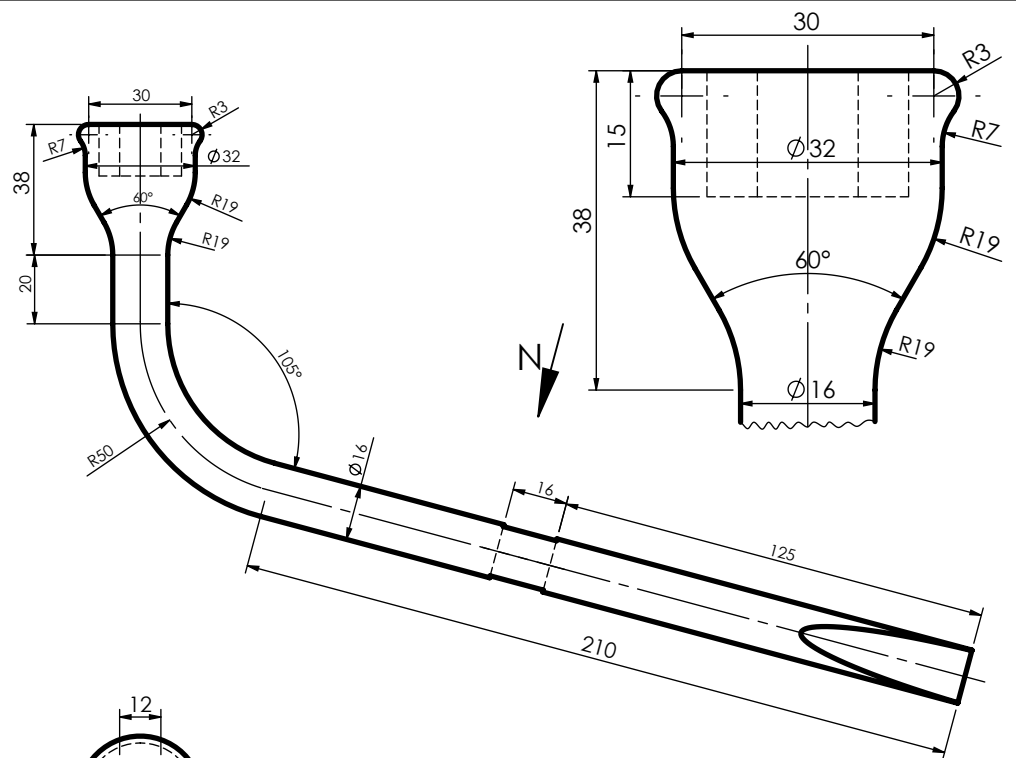
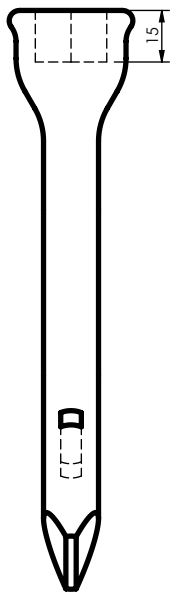
(26) (27)







(30)



View N

(31)

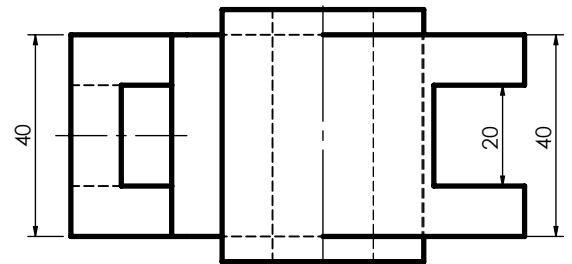
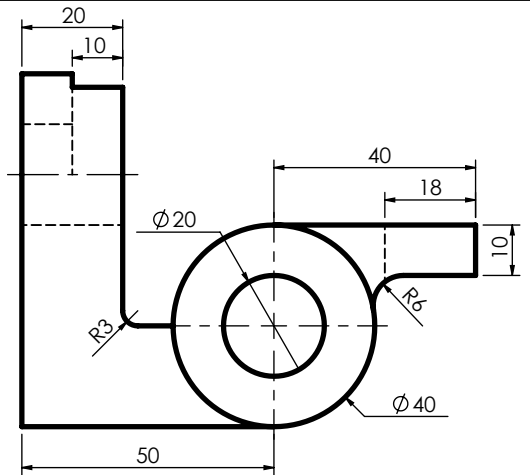
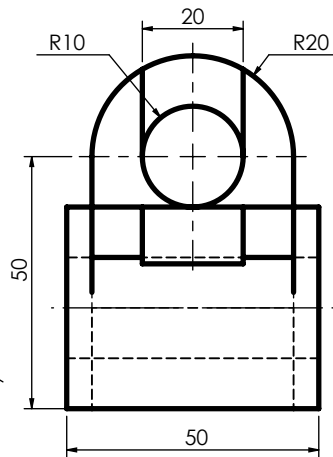
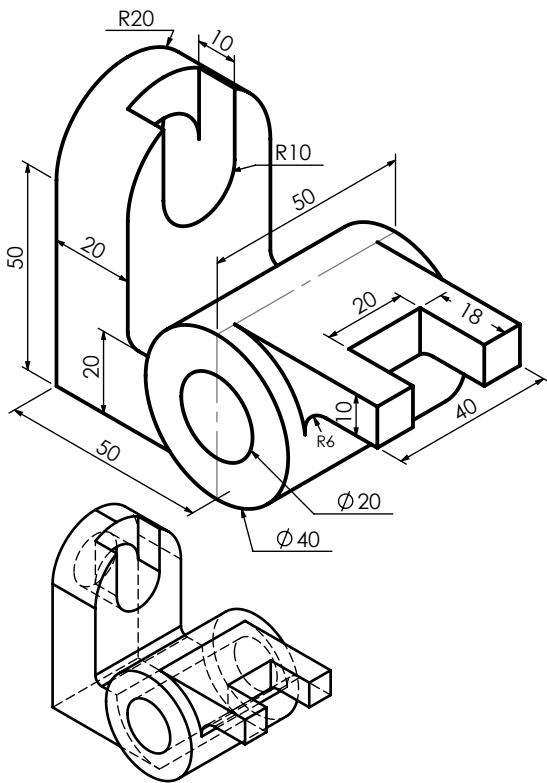
Sketch Entities: *Point, Line, circle.*

Sketch Tools : *Annotation, Center mark ,Center line, Extend, Relation, Dimensions.*

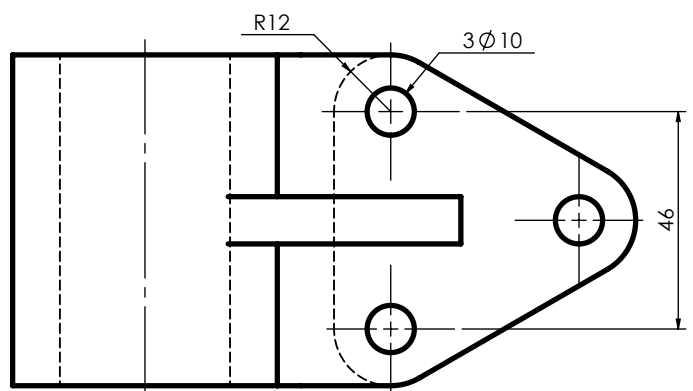
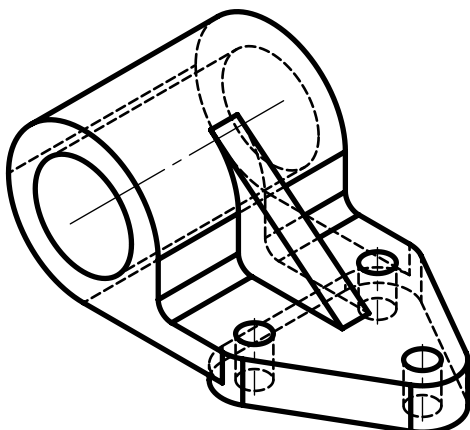
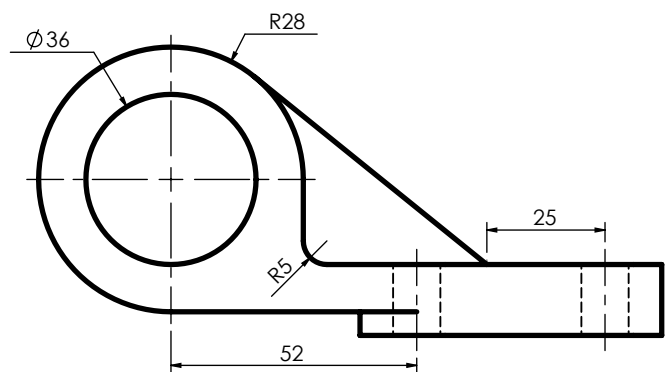
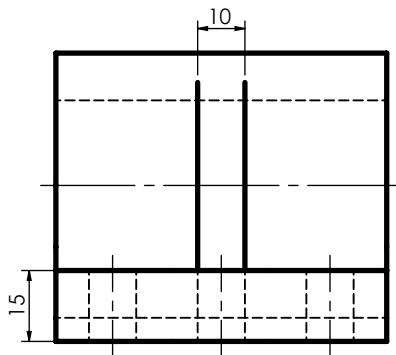
Feature : *Tapper Extrude, Shell.*

Problems: Make A drawing sheet for the following 3D models with fully dimension.

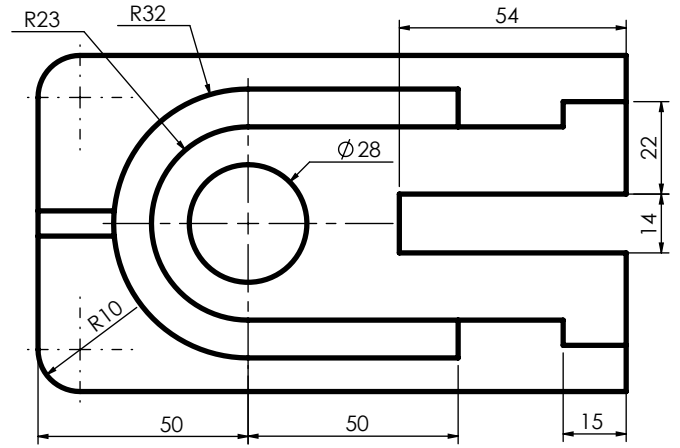
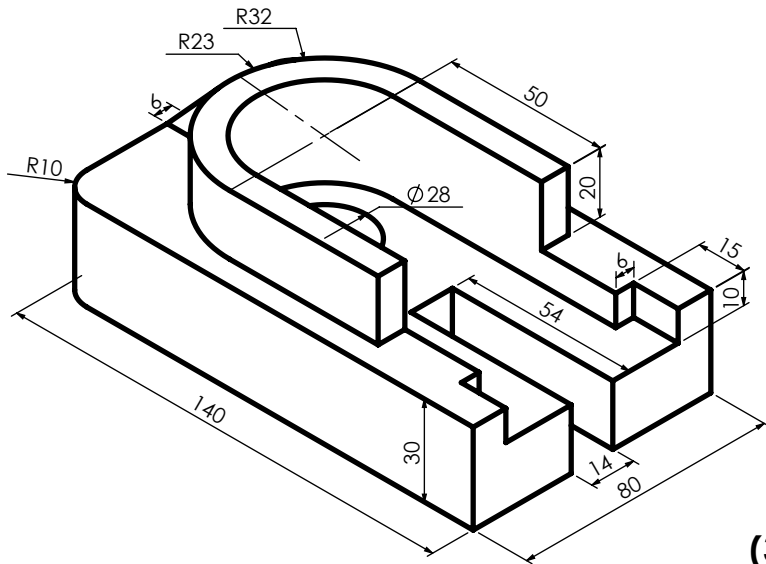
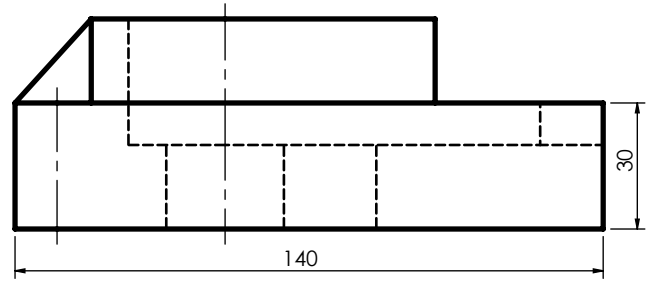
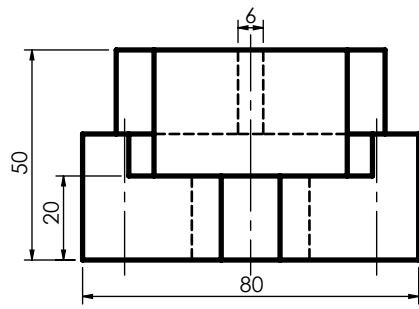
CLASSWORK



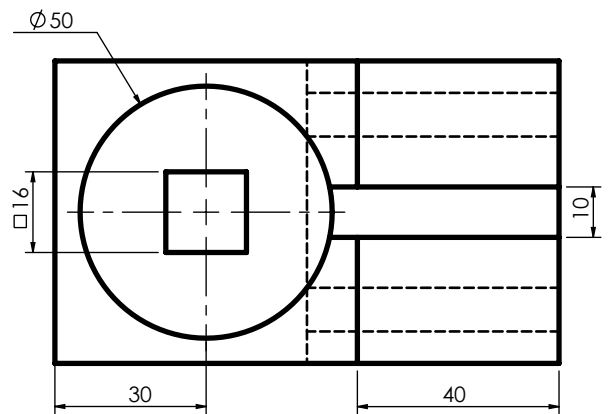
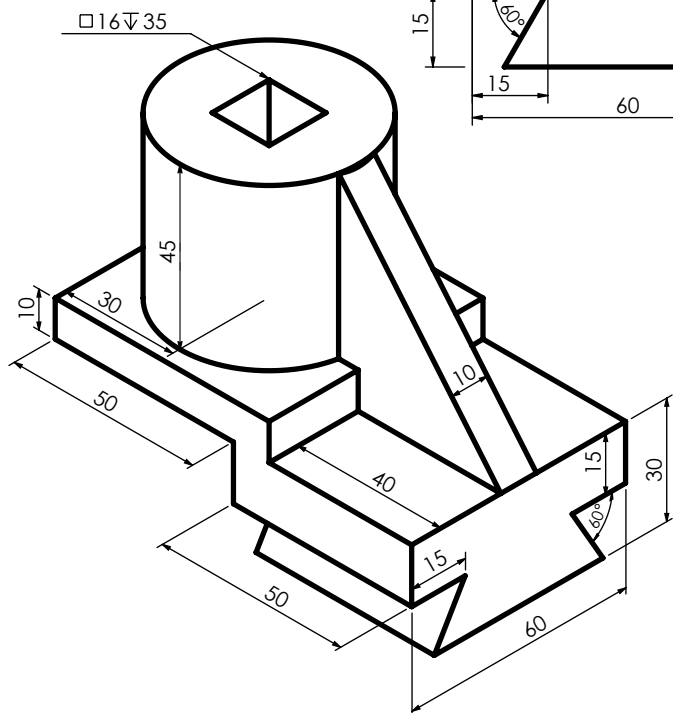
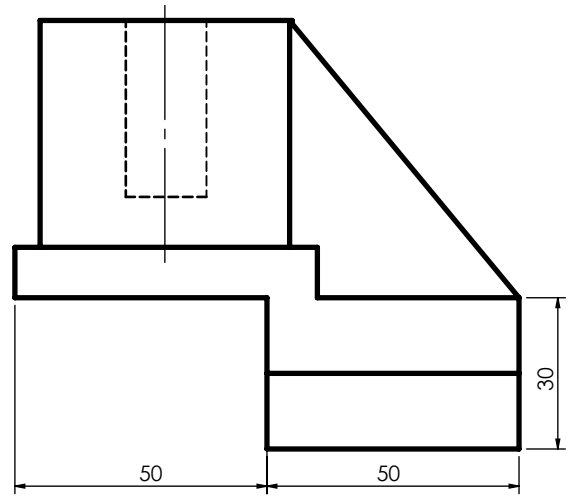
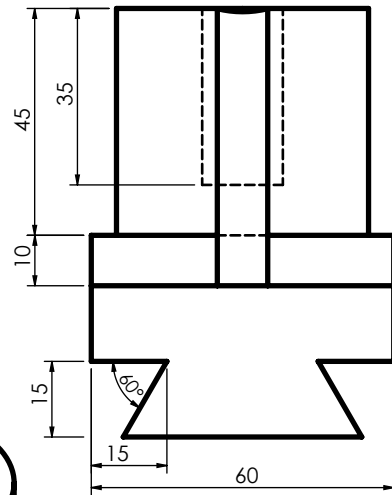
(1)



(2)



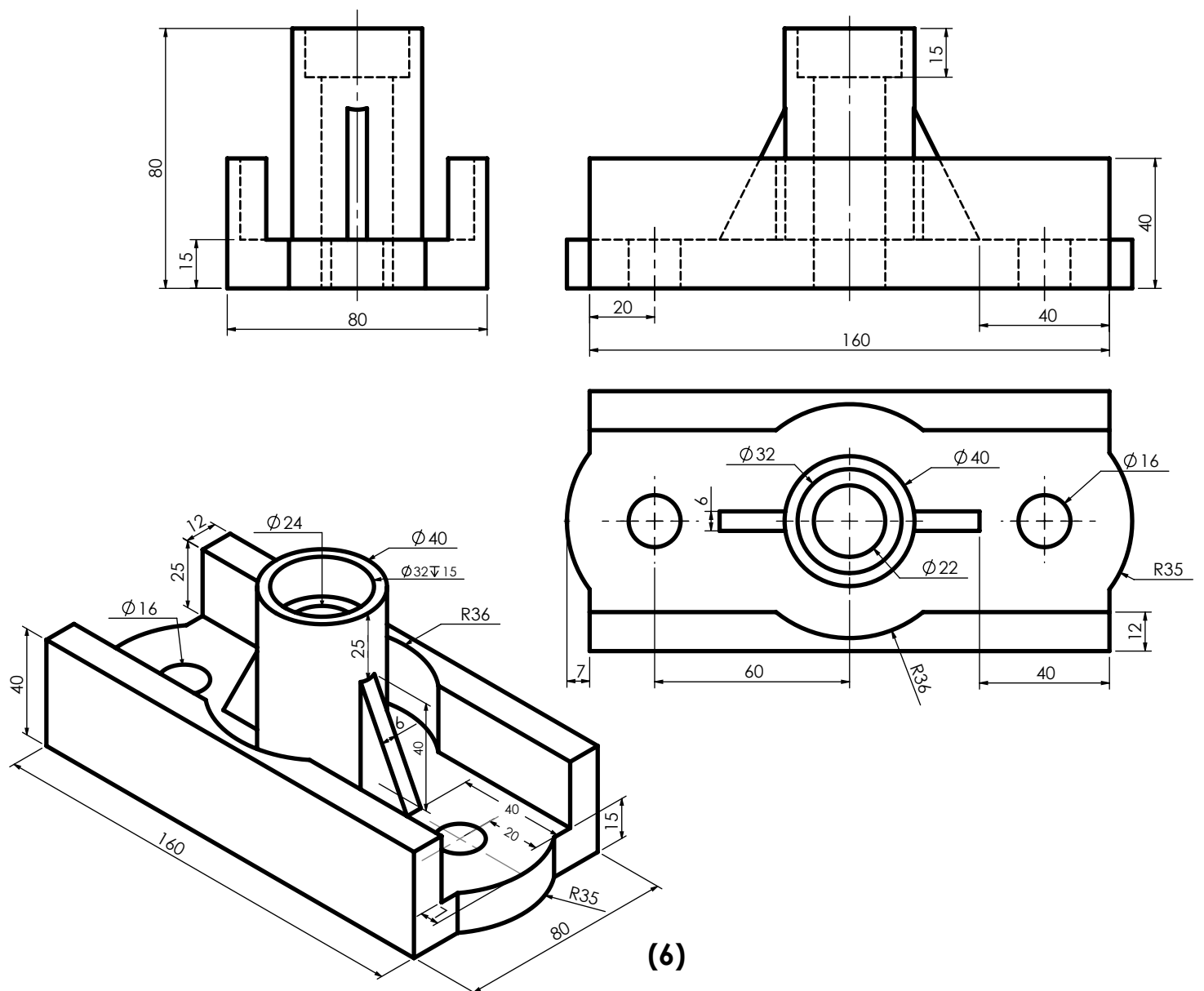
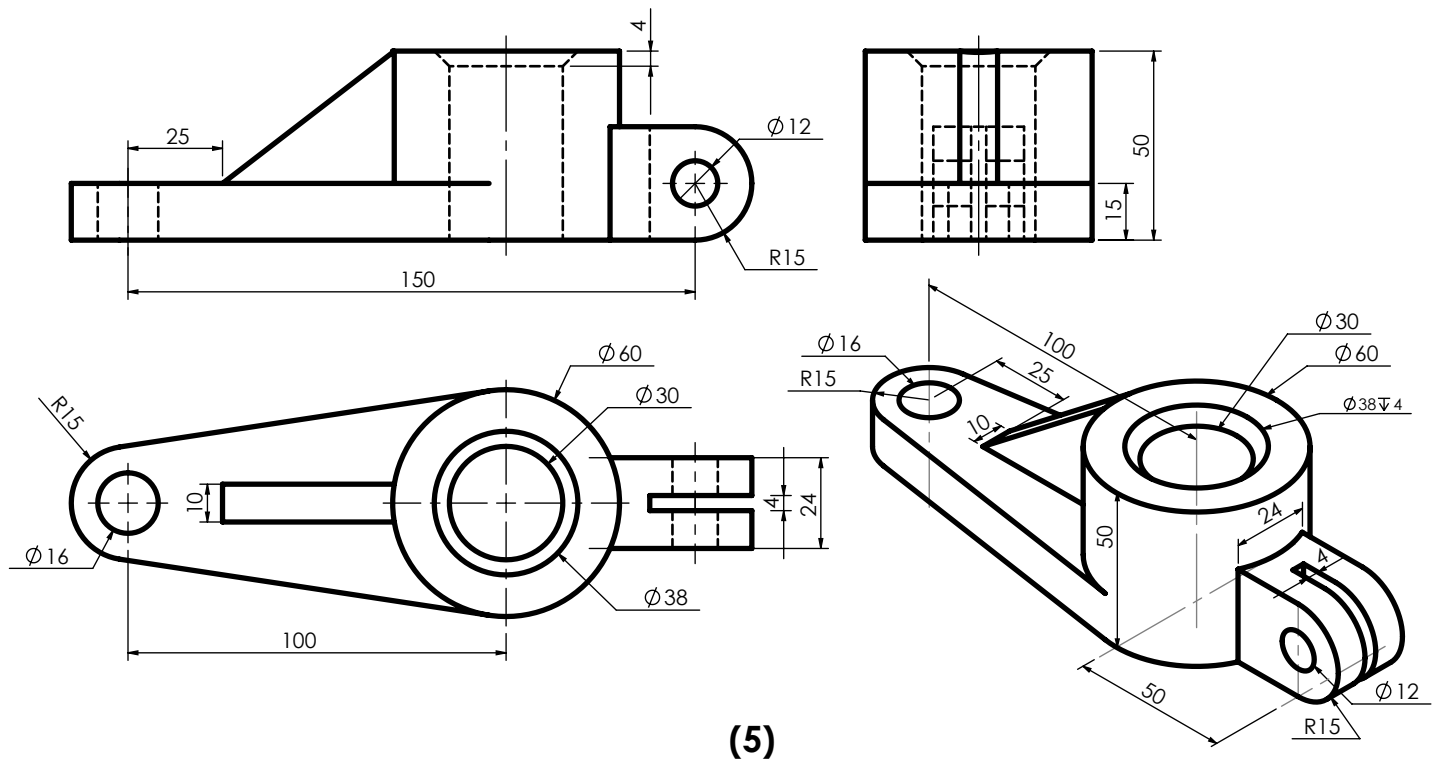
(3)

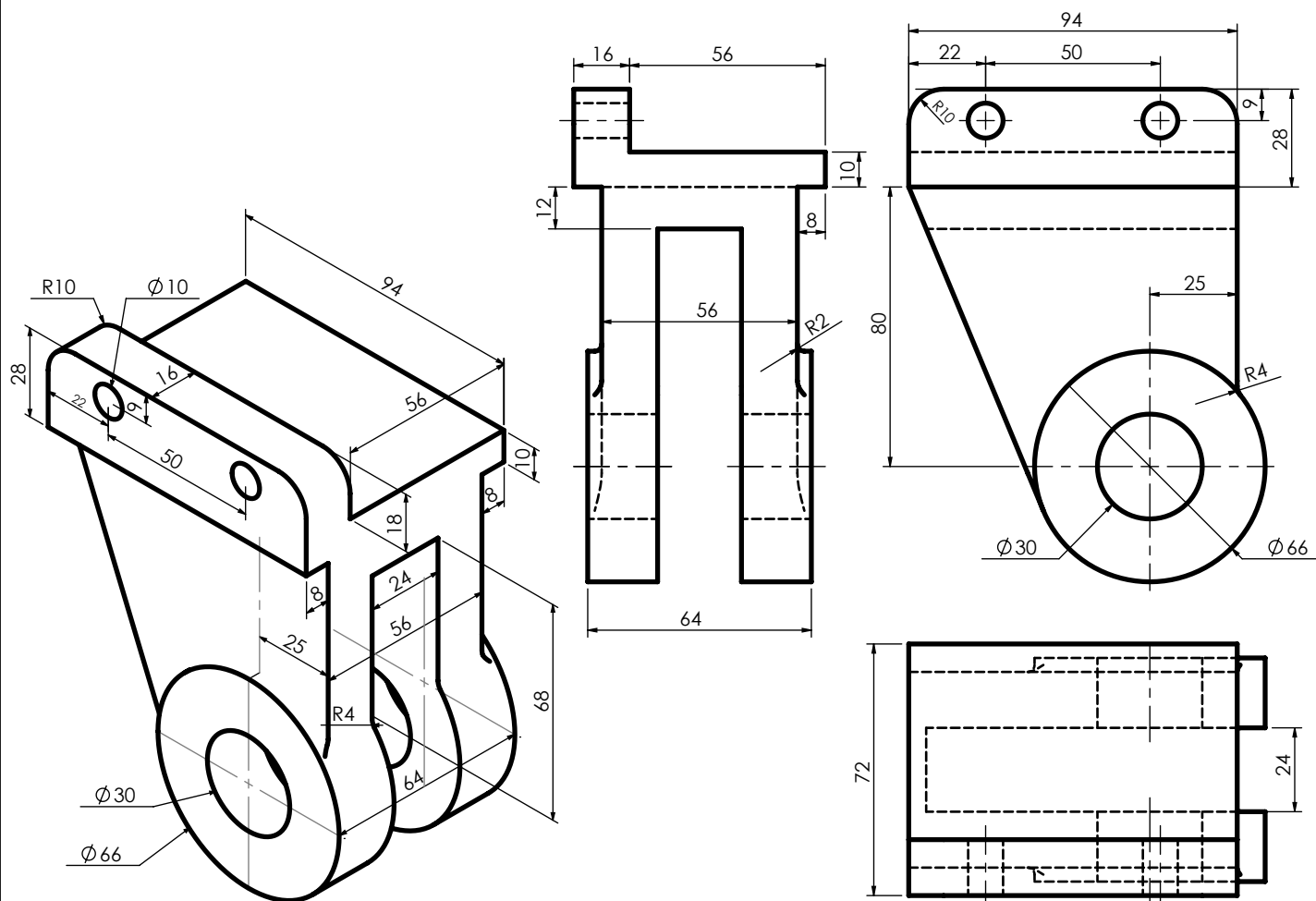


(4)

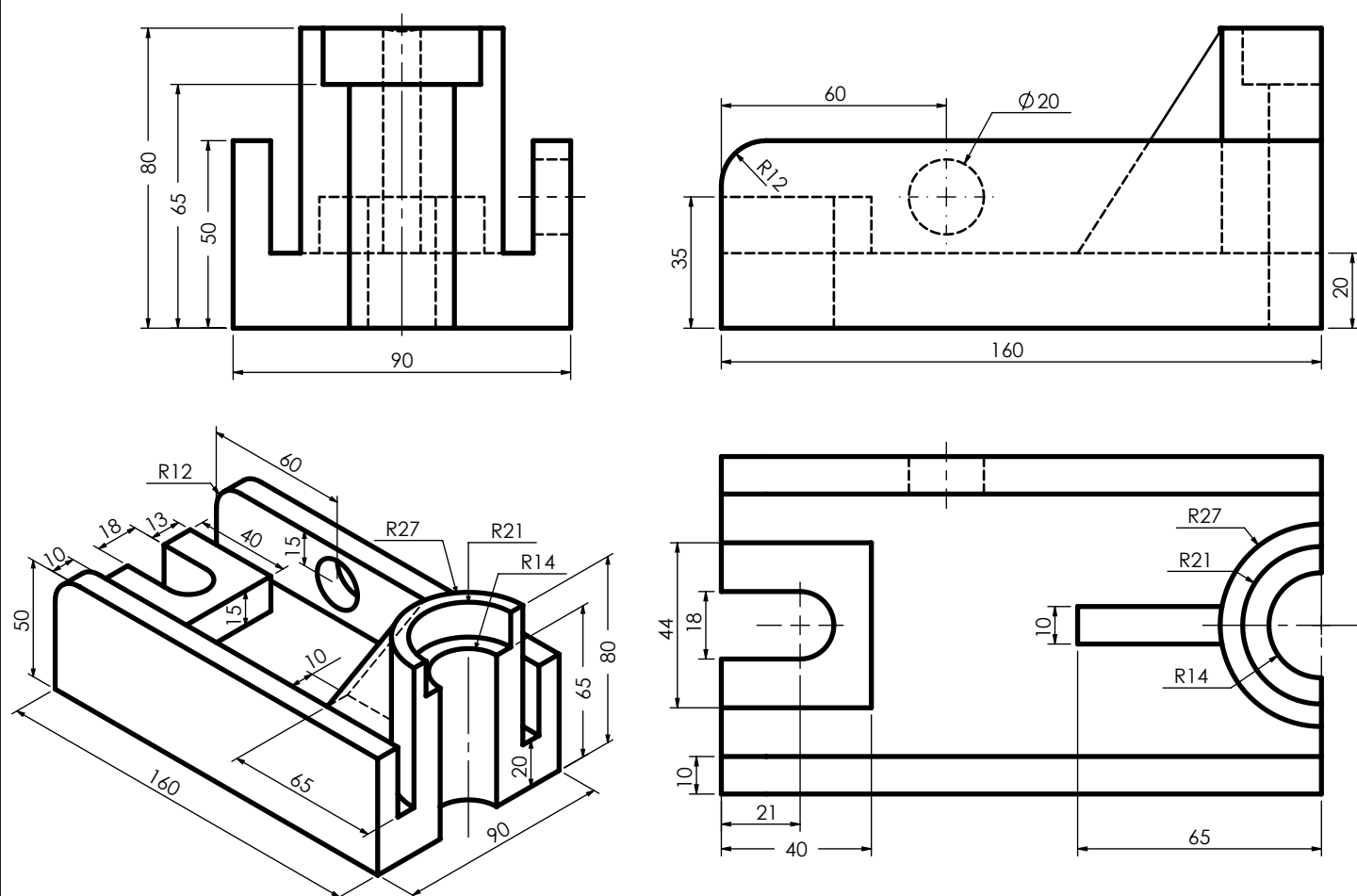
HOMWORK

- Level 1



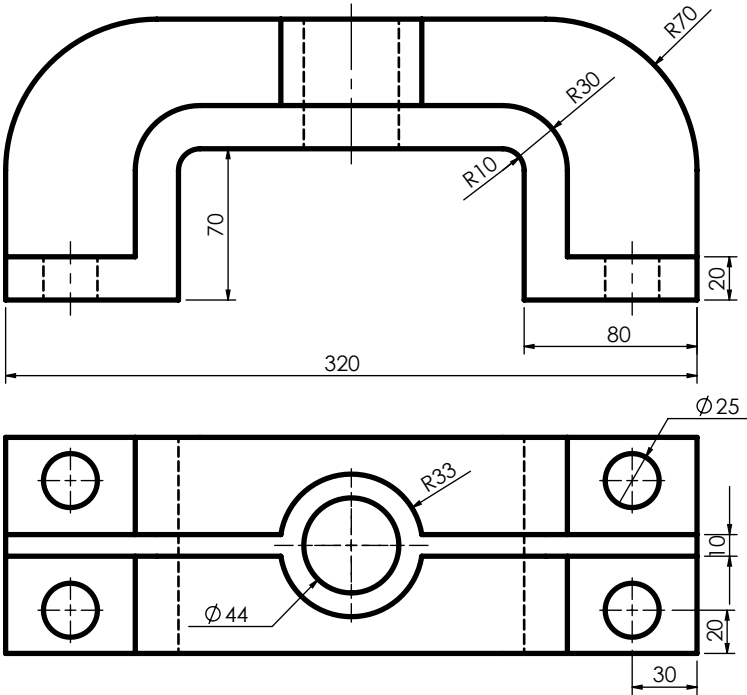
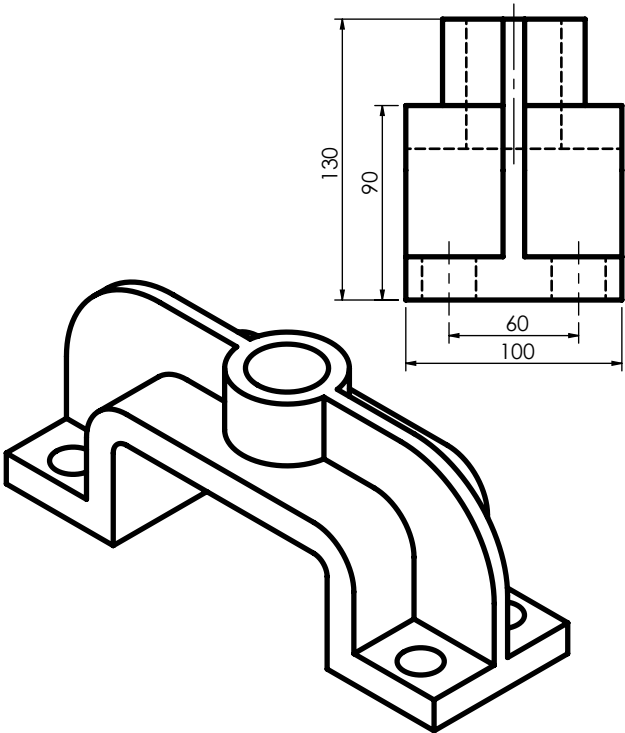


(7)

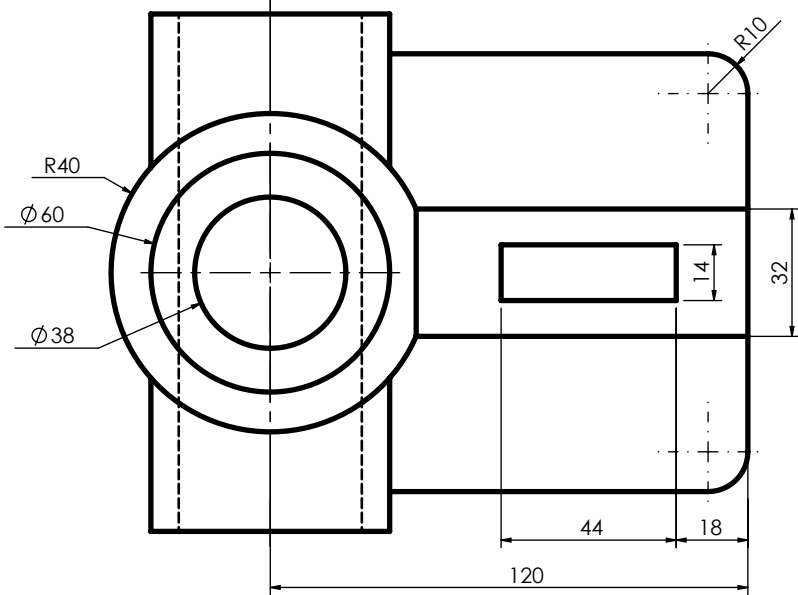
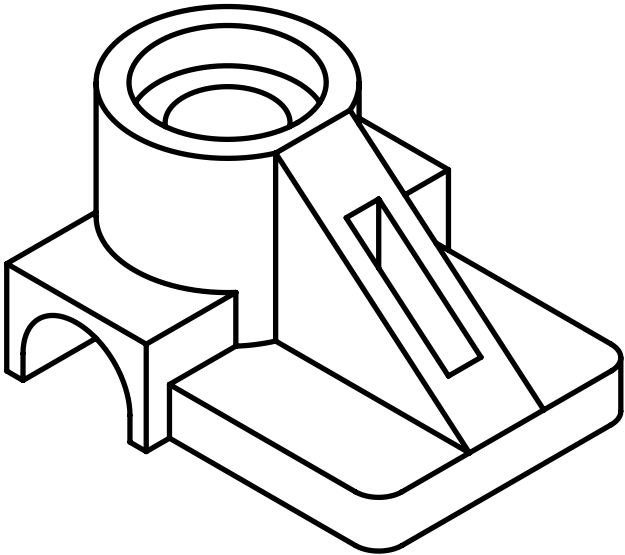
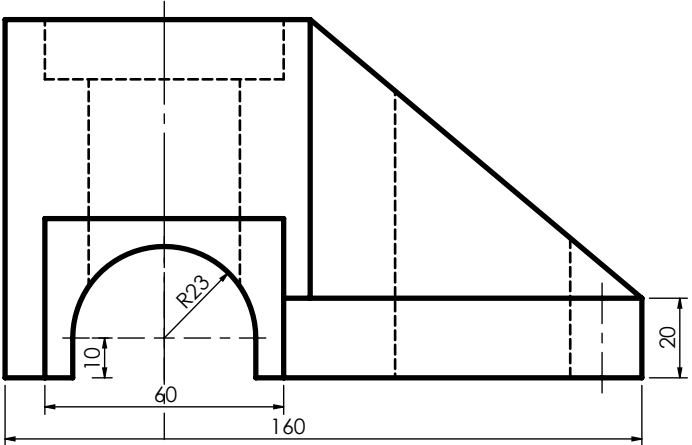
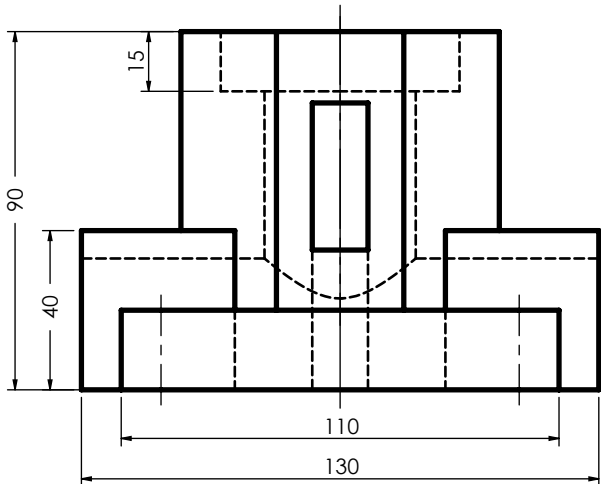


(8)

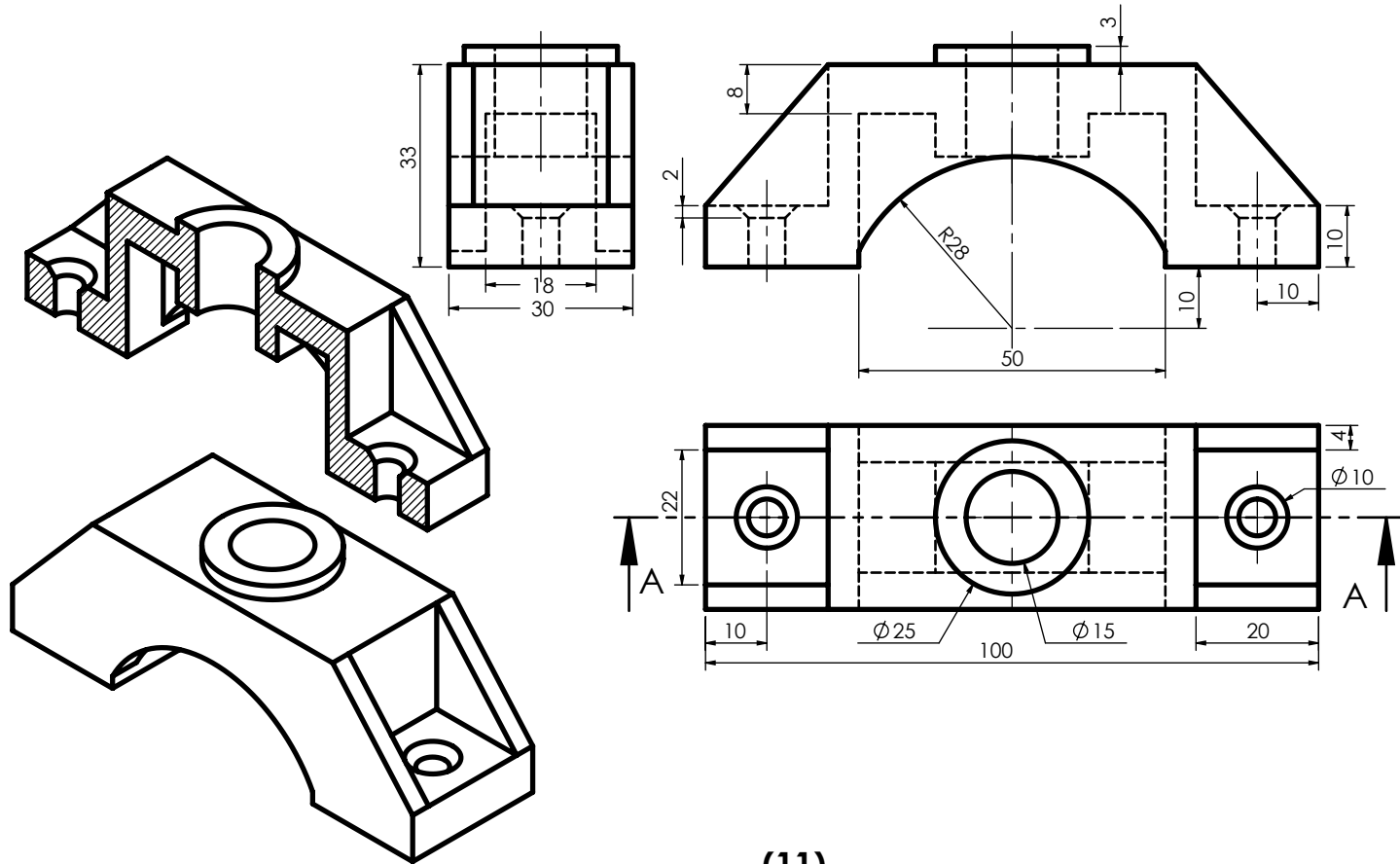
- Level 2



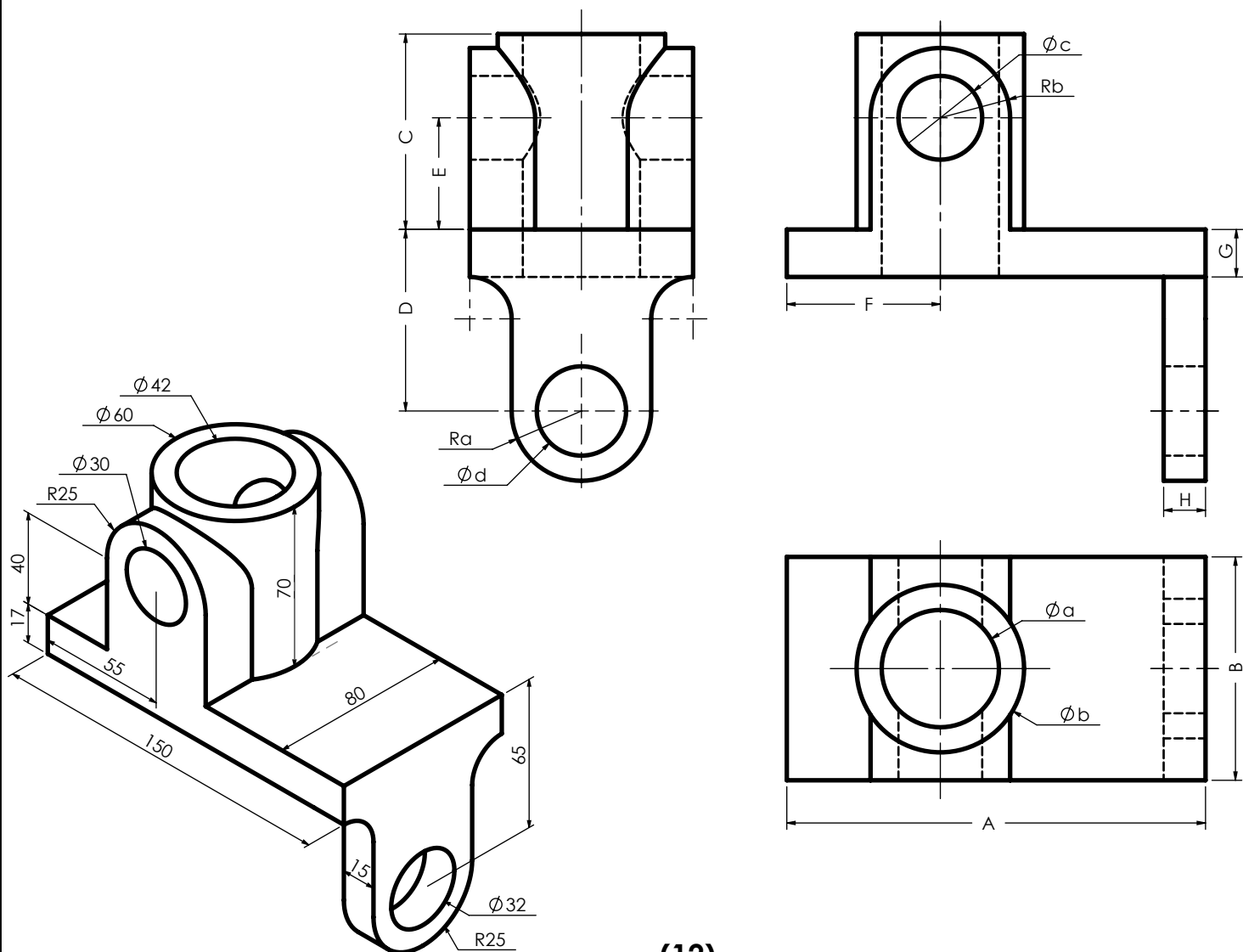
(9)



(10)

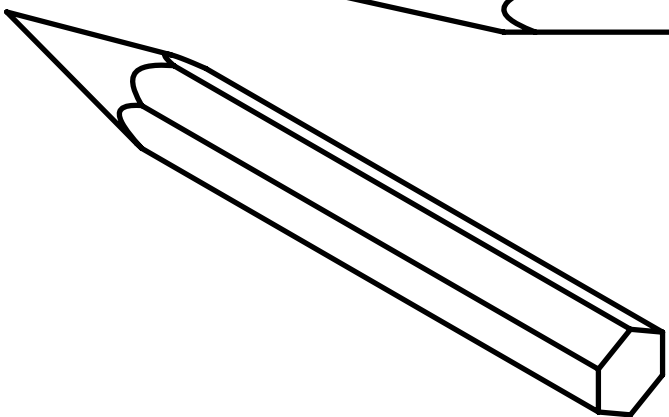
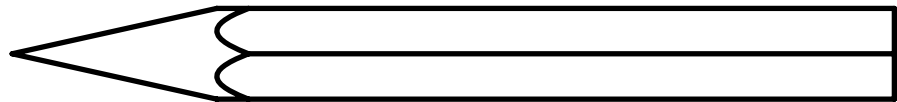
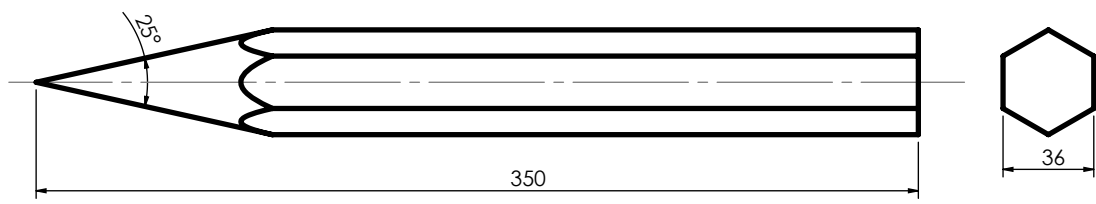


(11)

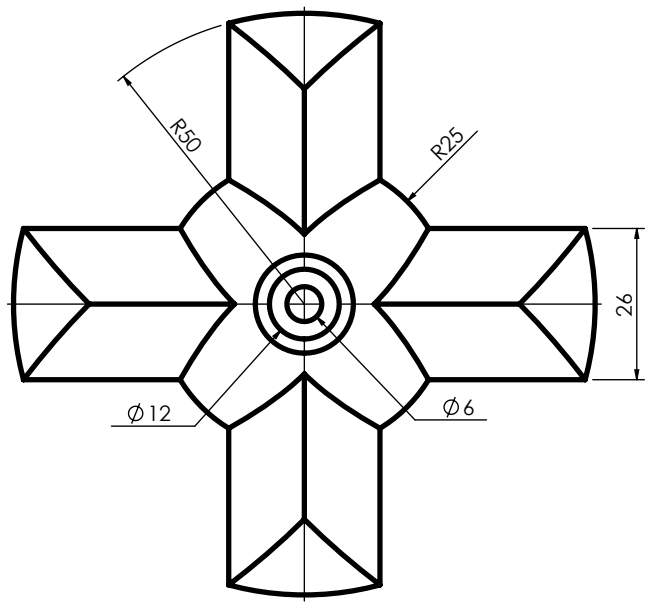
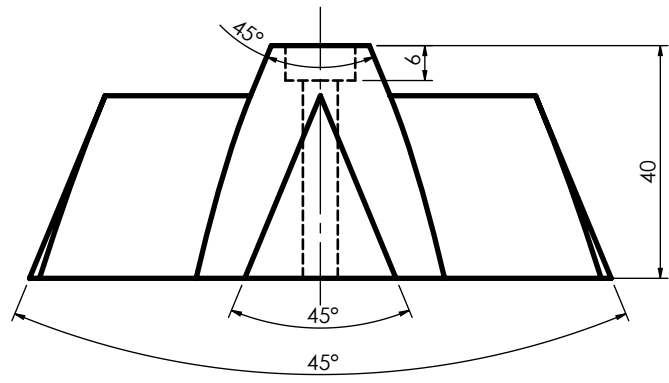
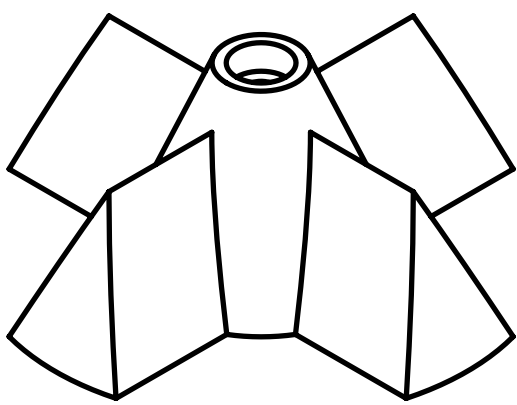


(12)

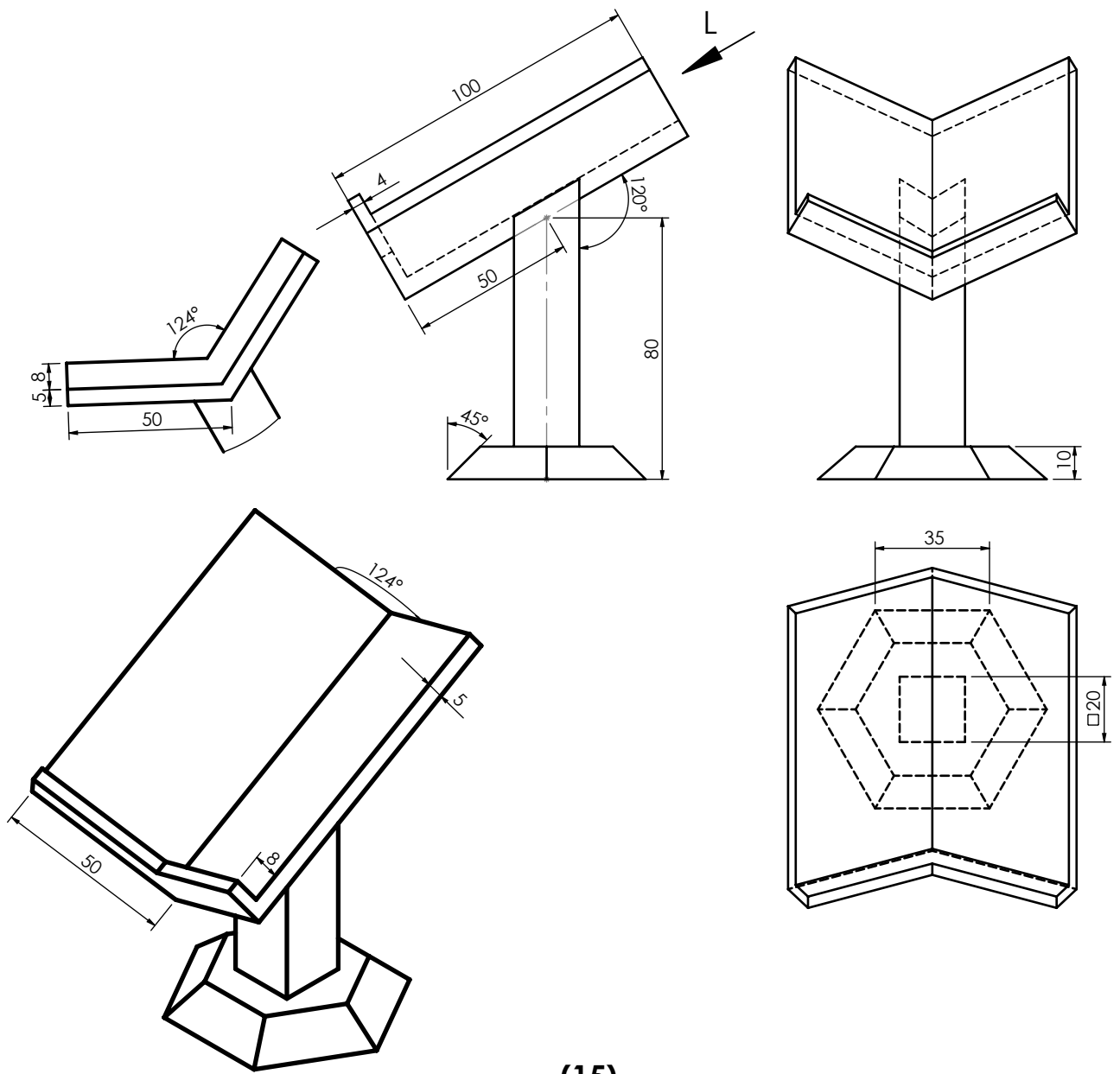
- Level 3



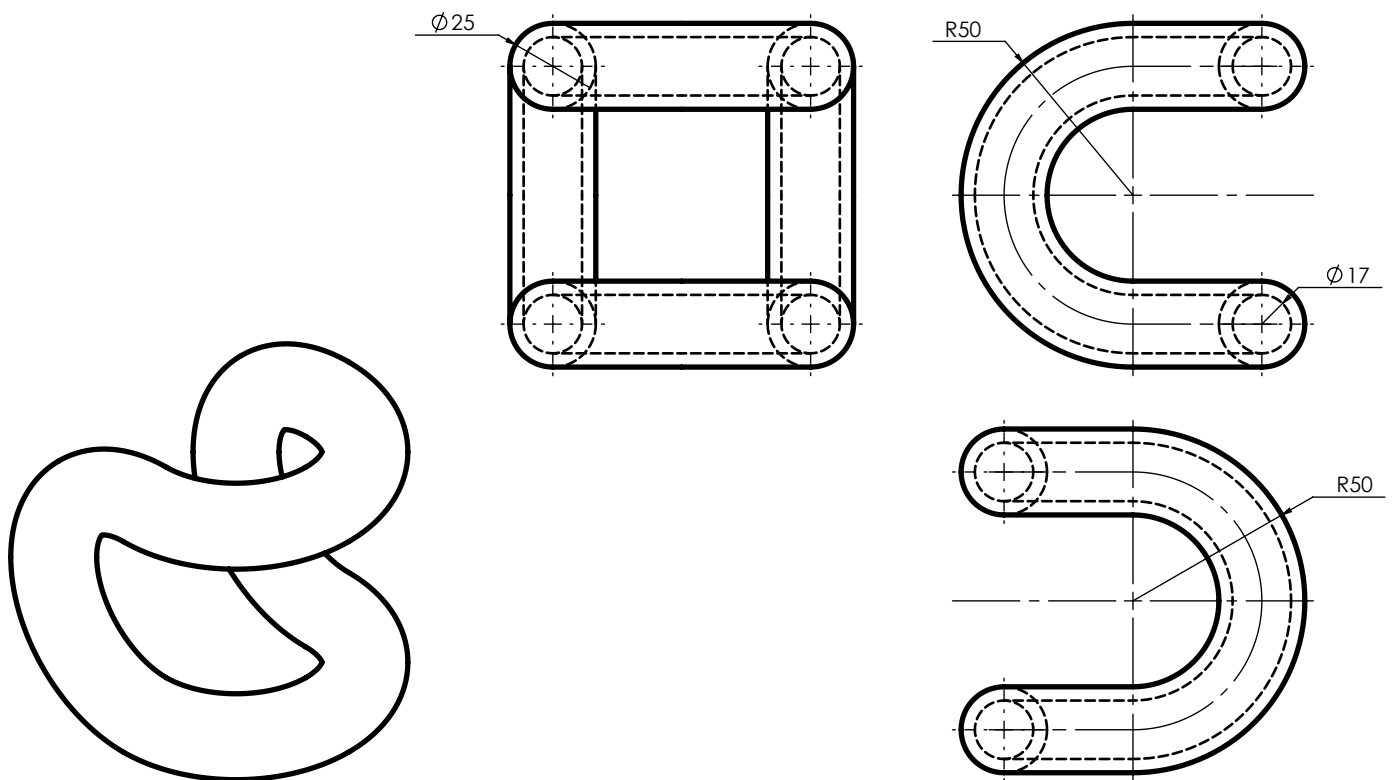
(13)



(14)



(15)

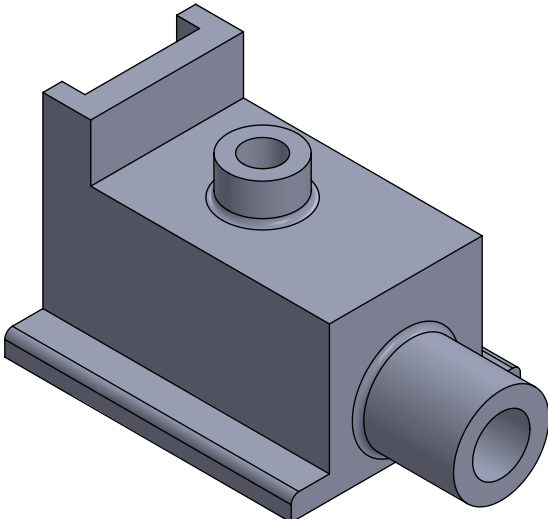
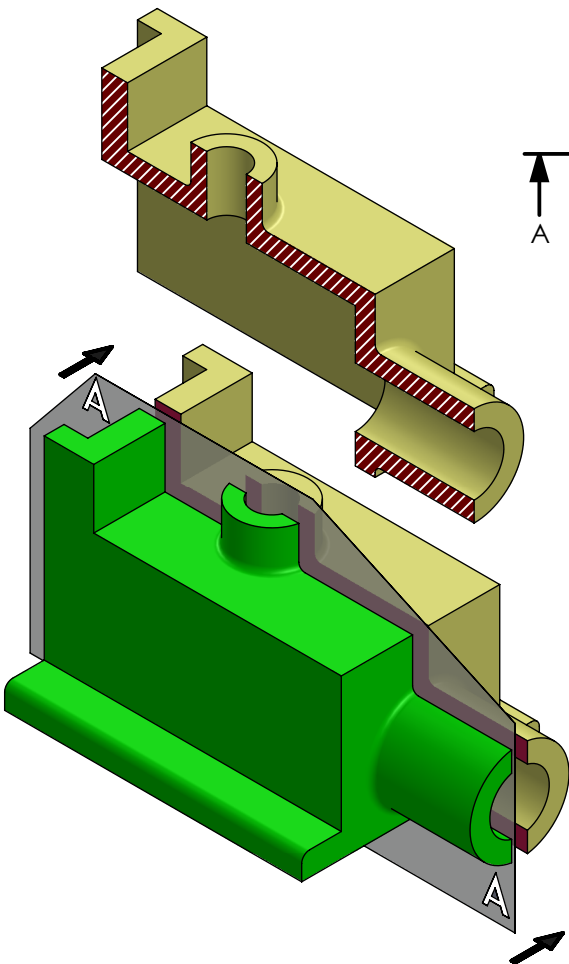
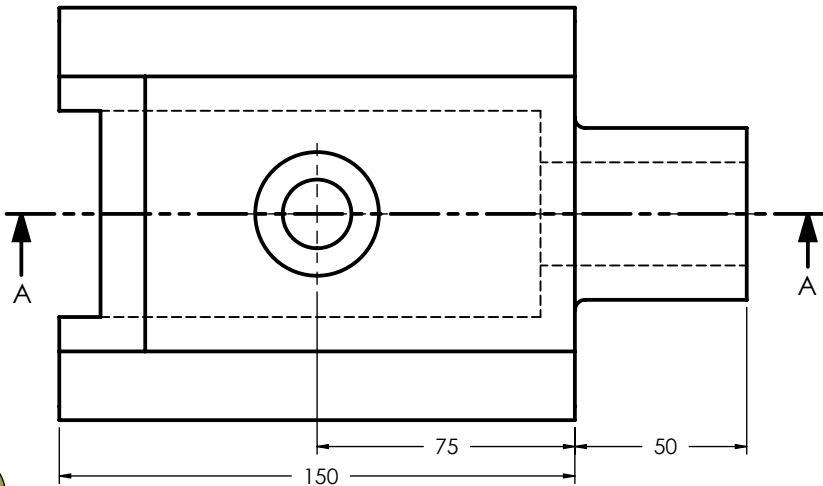
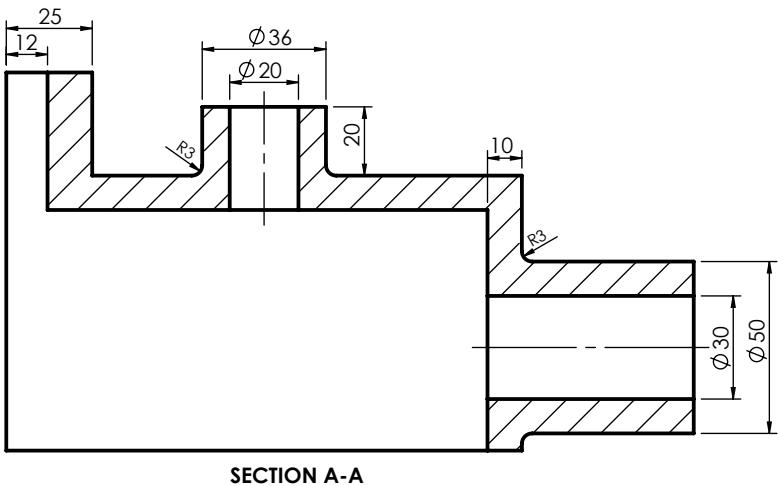
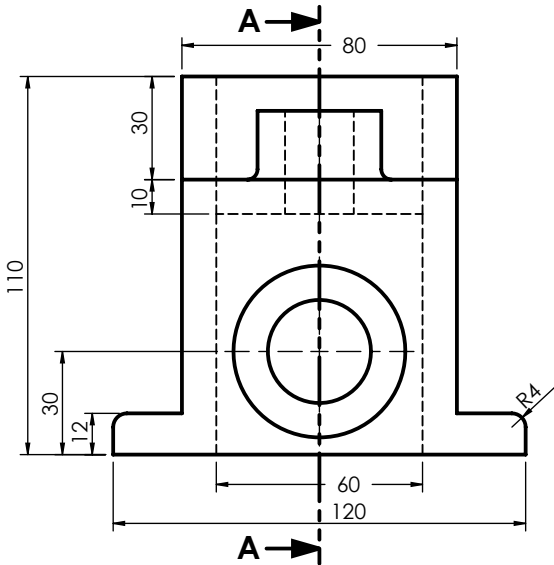


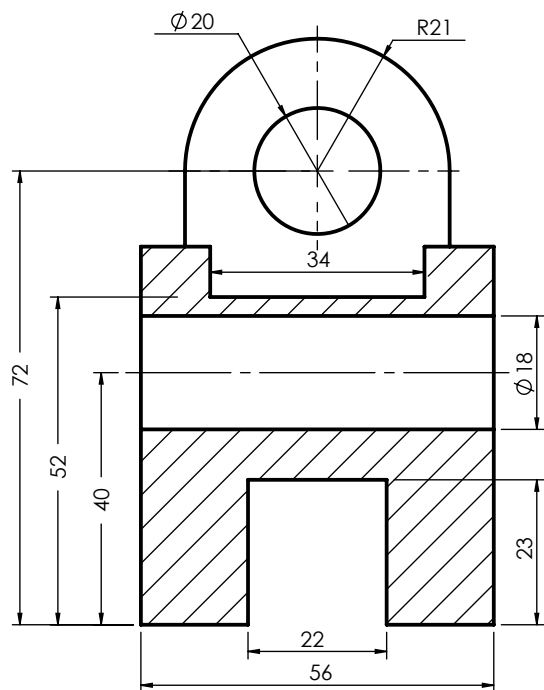
(16)

Sketch Entities	: Centerline, Center Mark
Sketch Tools	: Break, Crop View, Section view, Auxiliary view, Annotation
Feature	:

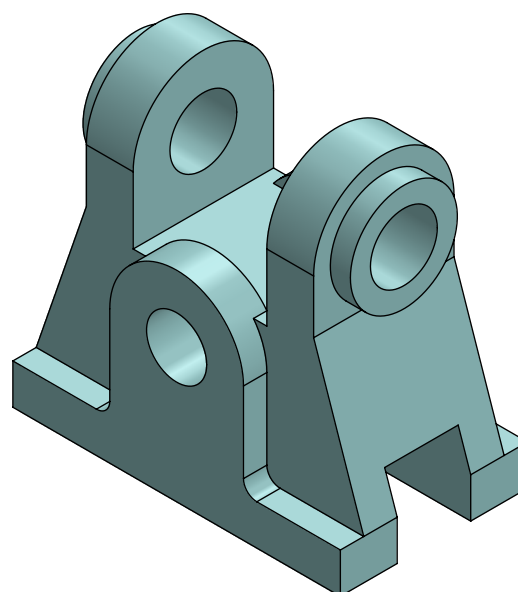
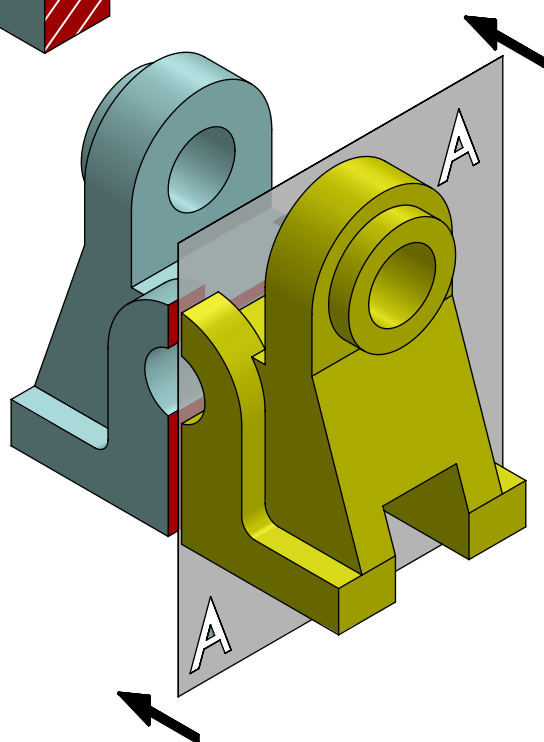
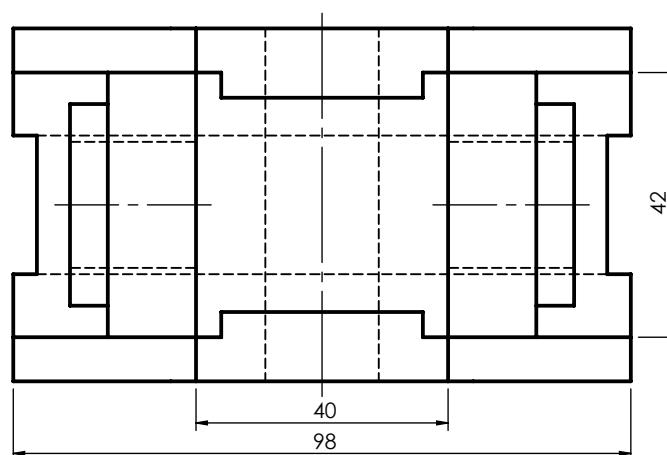
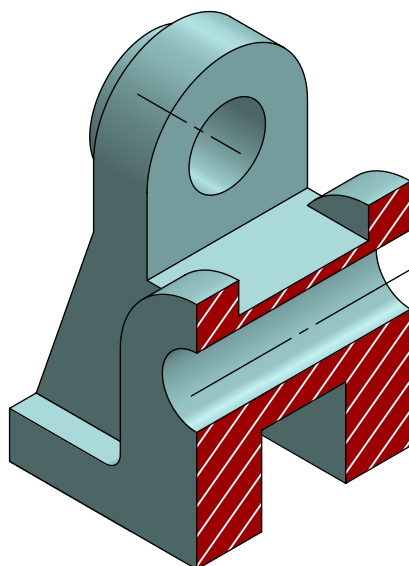
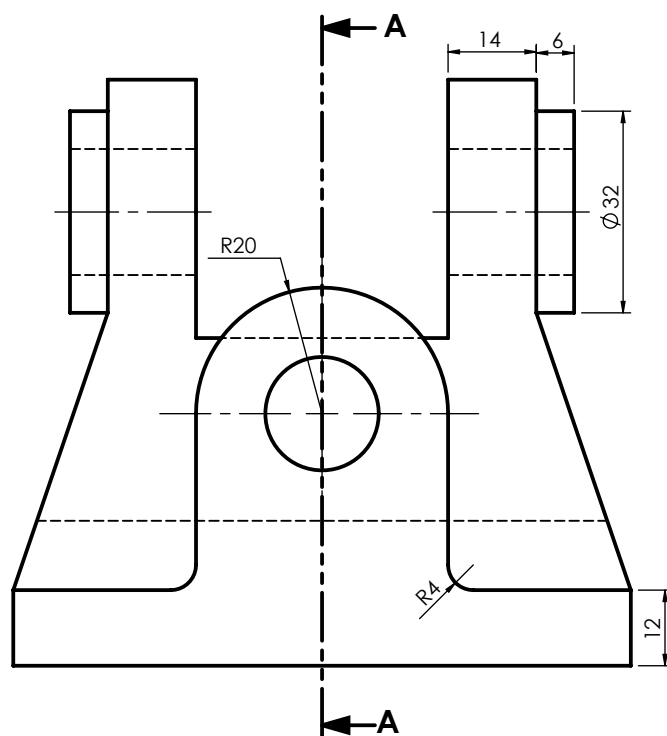
Problem1: Make a drawing sheet for the following 3D model with fully dimension.

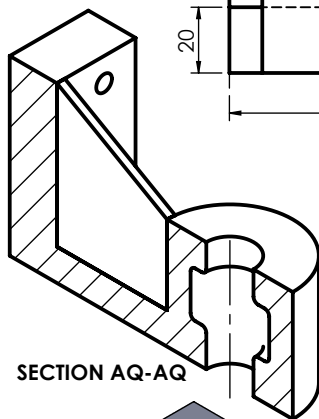
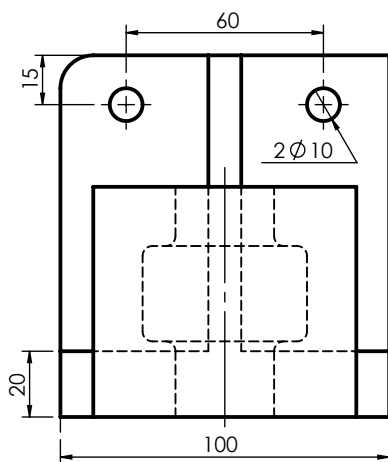
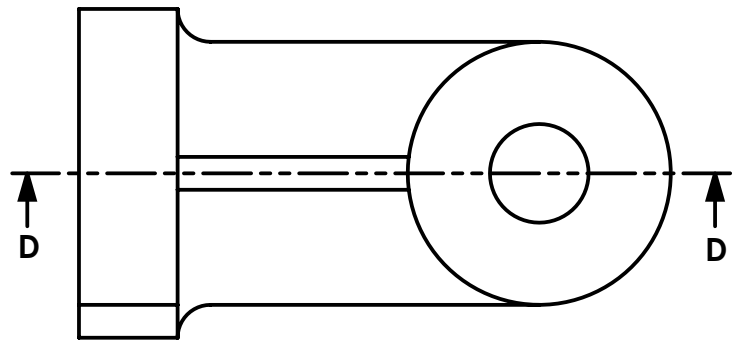
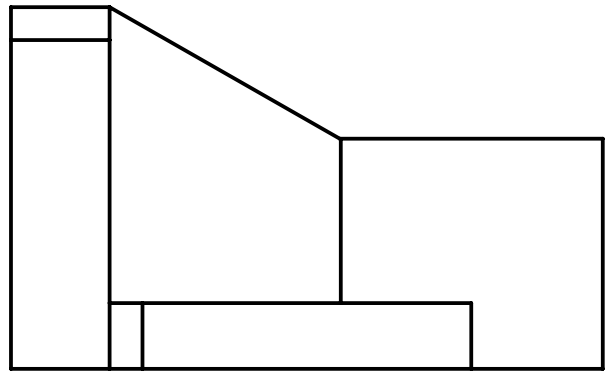
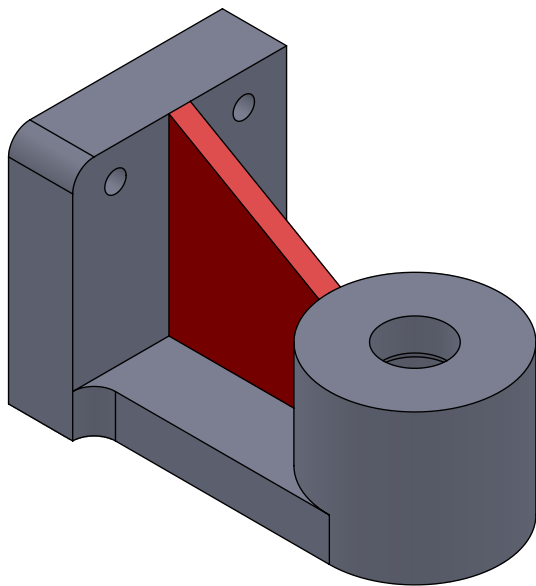
CLASSWORK



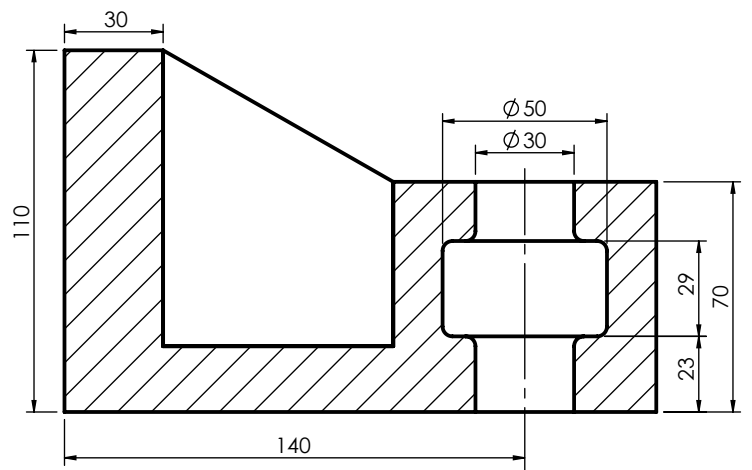


SECTION A-A

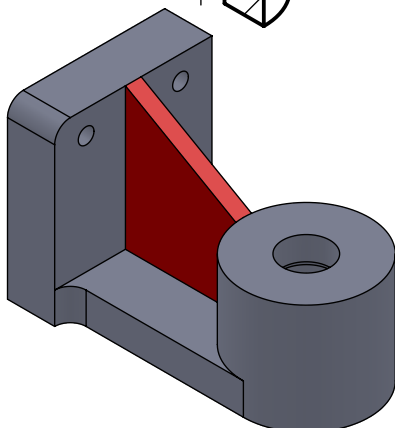
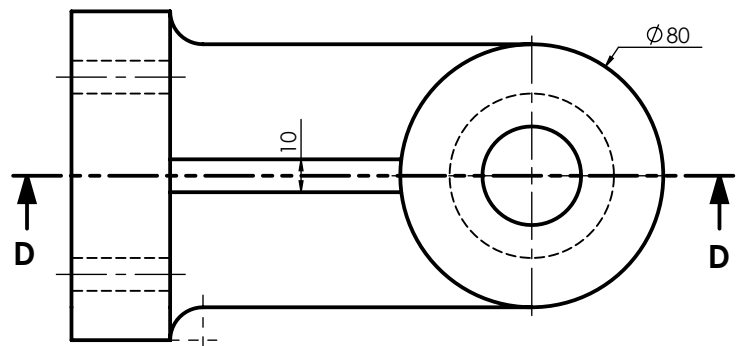


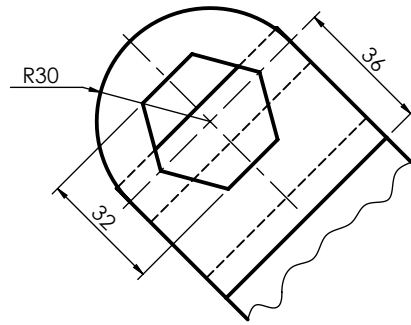
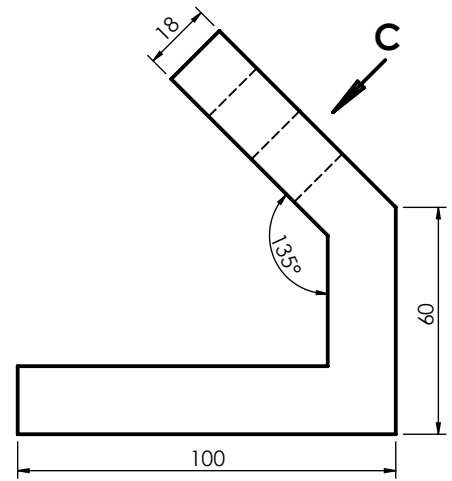
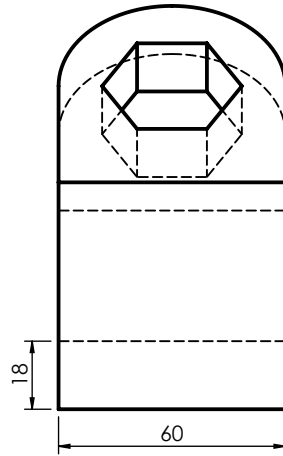
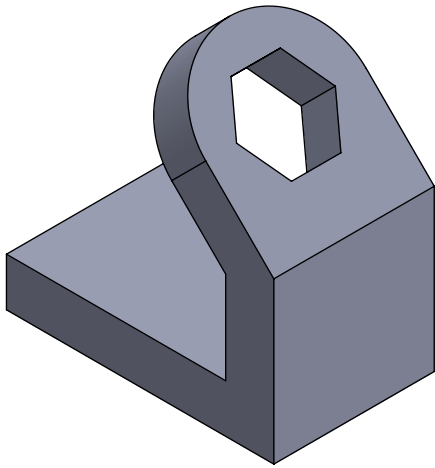


SECTION A-A



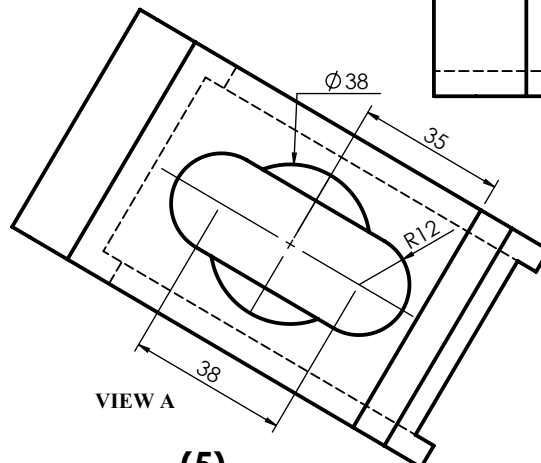
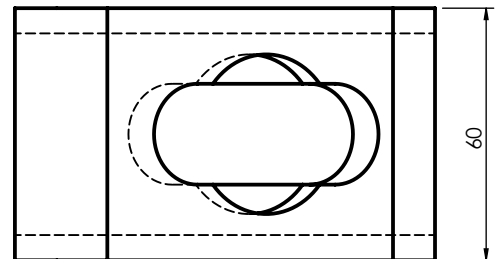
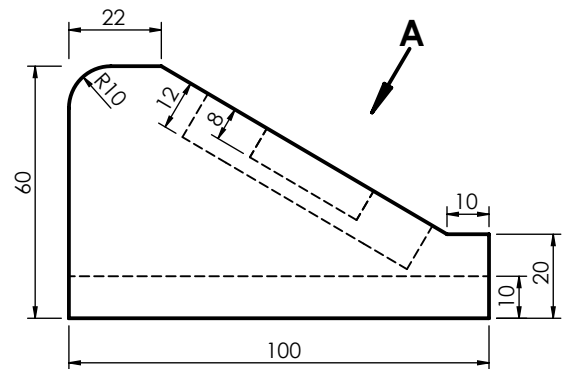
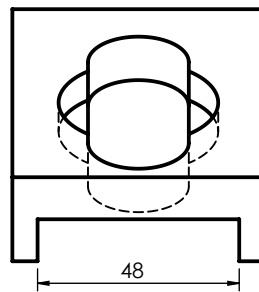
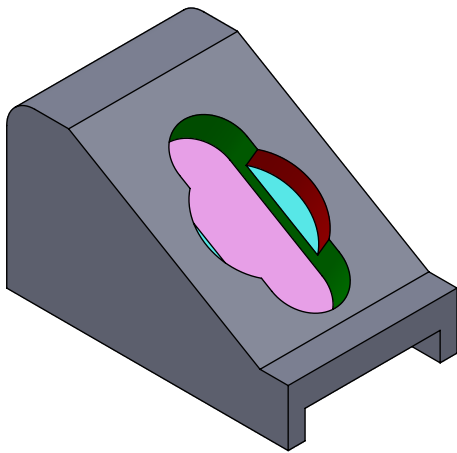
SECTION D-D





VIEW C

(4)

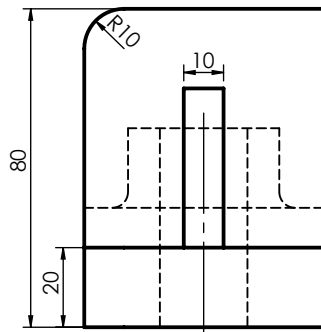


VIEW A

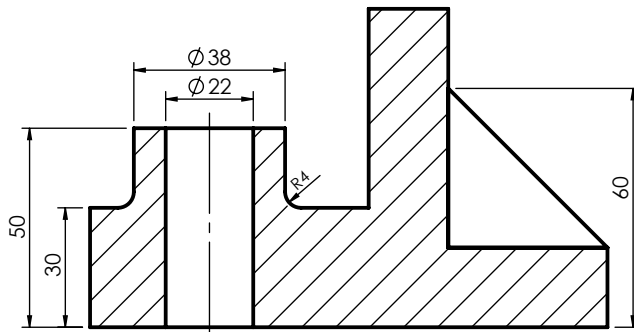
(5)

HOMework

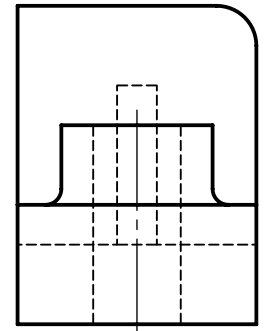
- Level 1



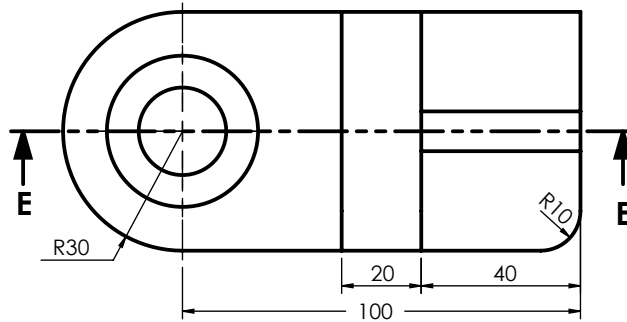
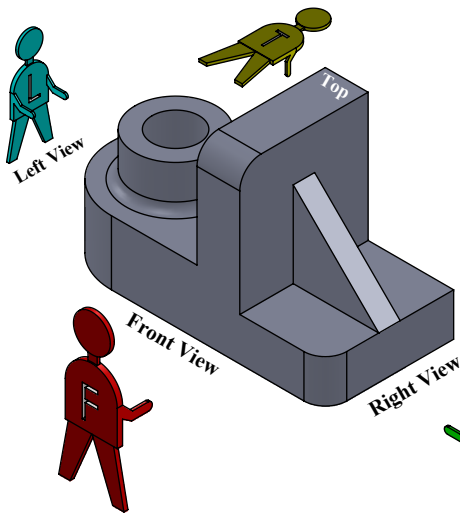
Right Side View



Section Front E-E

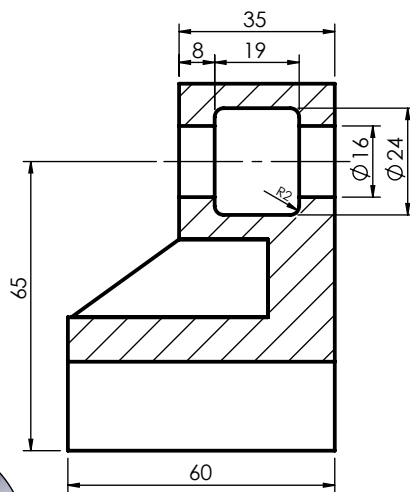


Left Side View

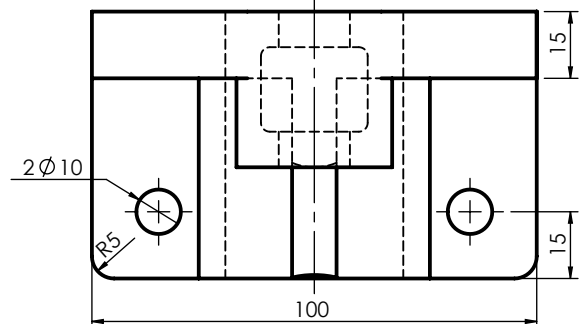
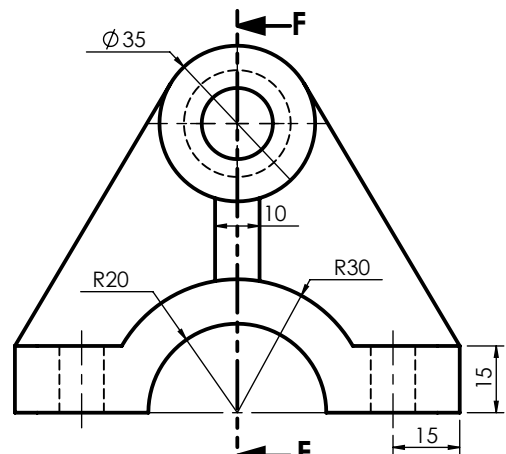


Top View

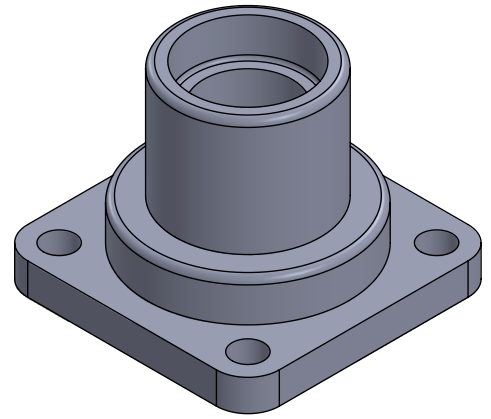
(6)



SECTION F-F



(7)



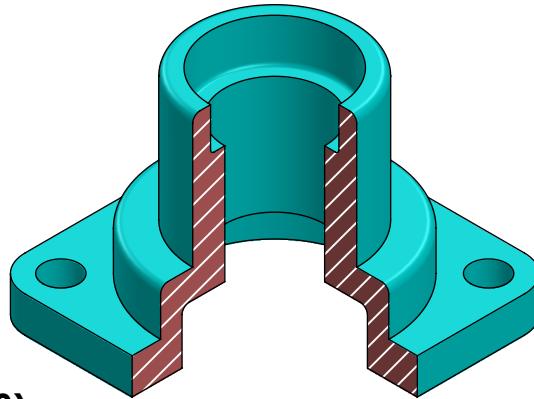
Technical drawing of a square plate with a central circular hole and four corner holes. The plate has a side length of 80 mm. The central hole has a diameter of 64 mm. There are four corner holes, each with a diameter of 10 mm. The plate has a fillet radius of 10 mm at the corners. The drawing shows the front view with dimensions and section lines.

Dimensions and features:

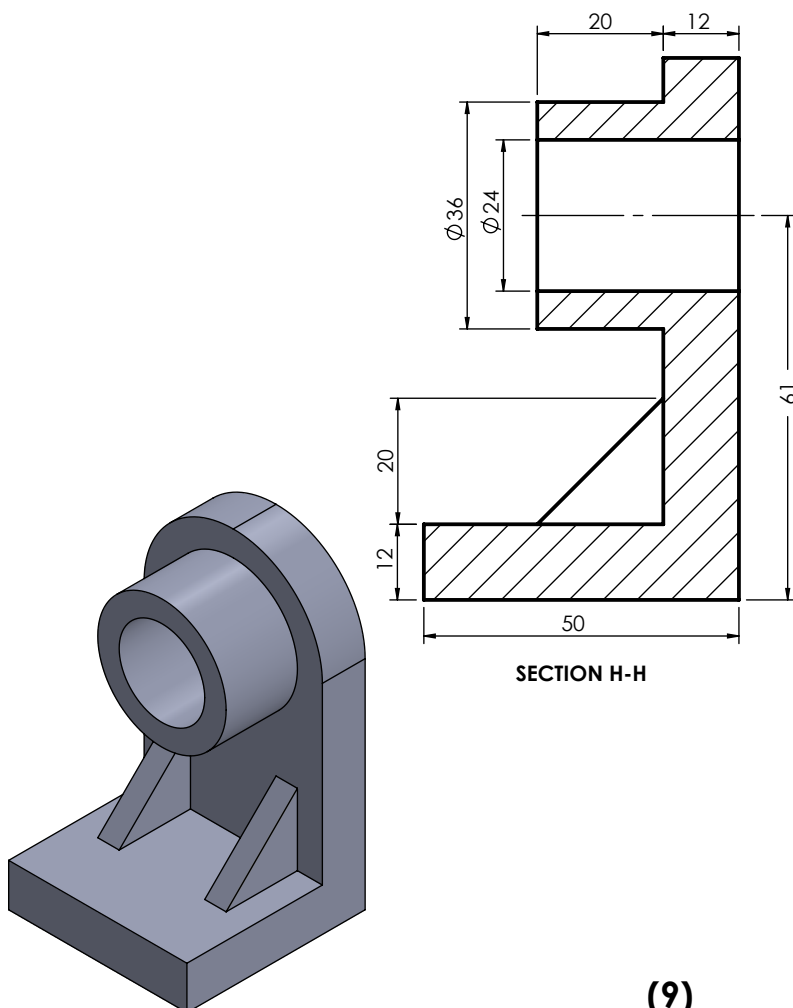
- Side length: 80
- Central hole diameter: $\varnothing 64$
- Corner hole diameter: $4 \varnothing 10$
- Fillet radius: $R10$

Section lines are shown as dashed lines with arrows pointing outwards, labeled 'E'.

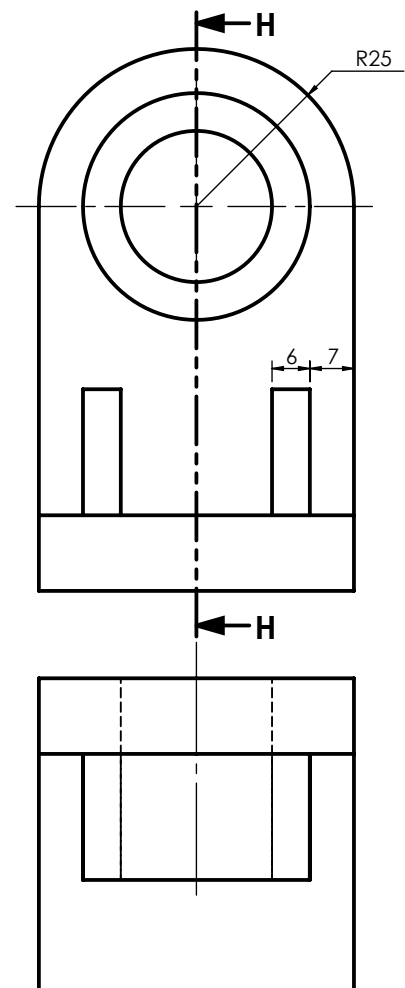
(8)



(8)

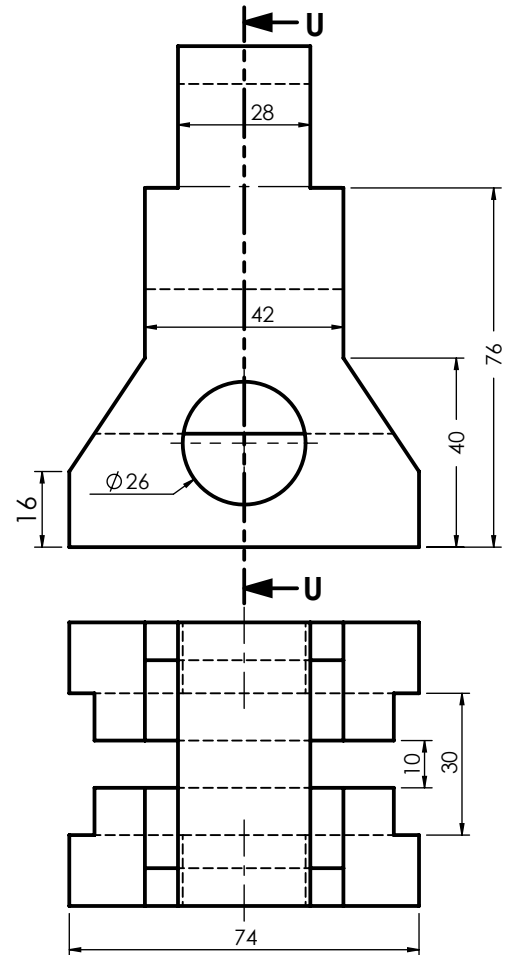
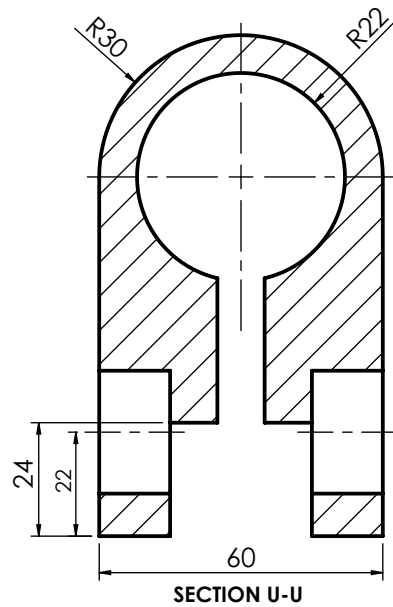
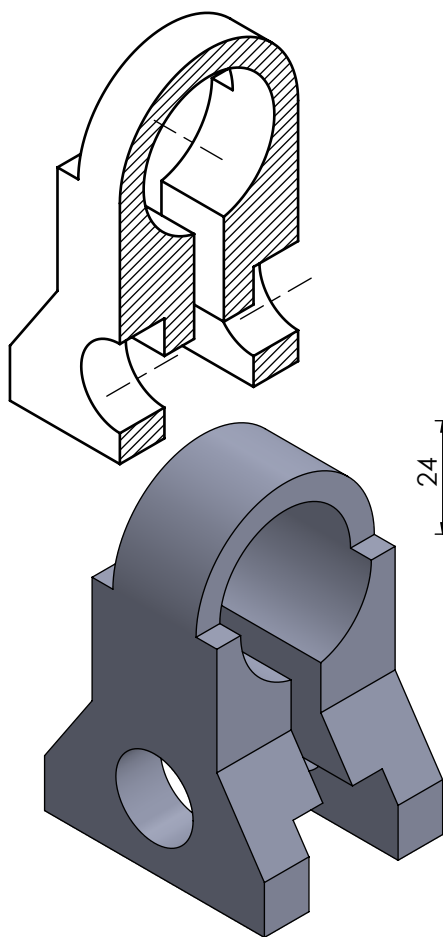


SECTION H-H

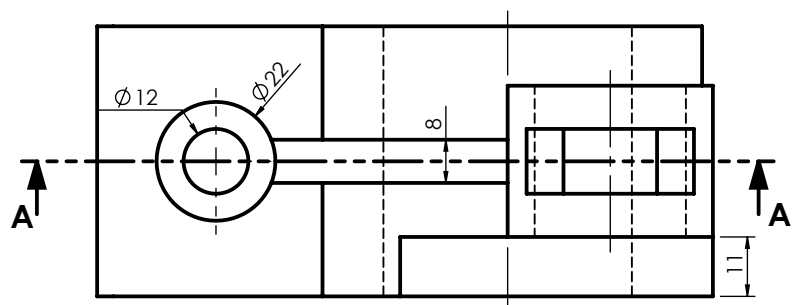
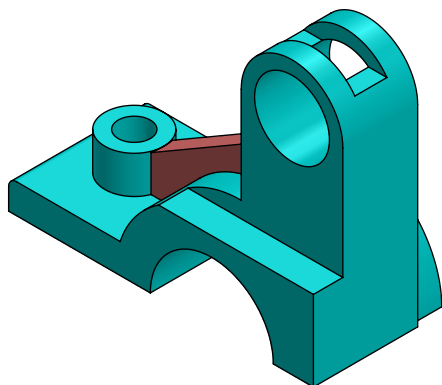
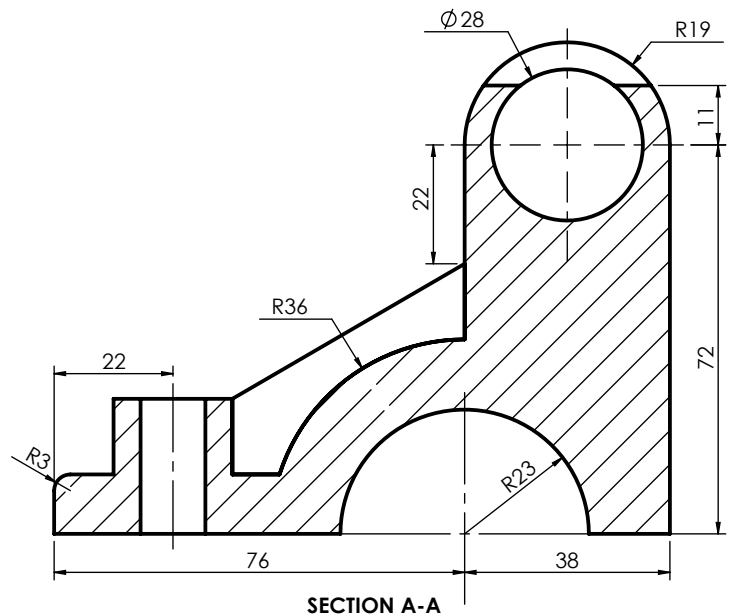
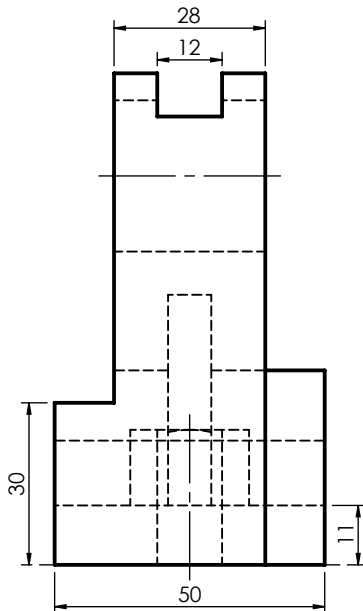


(9)

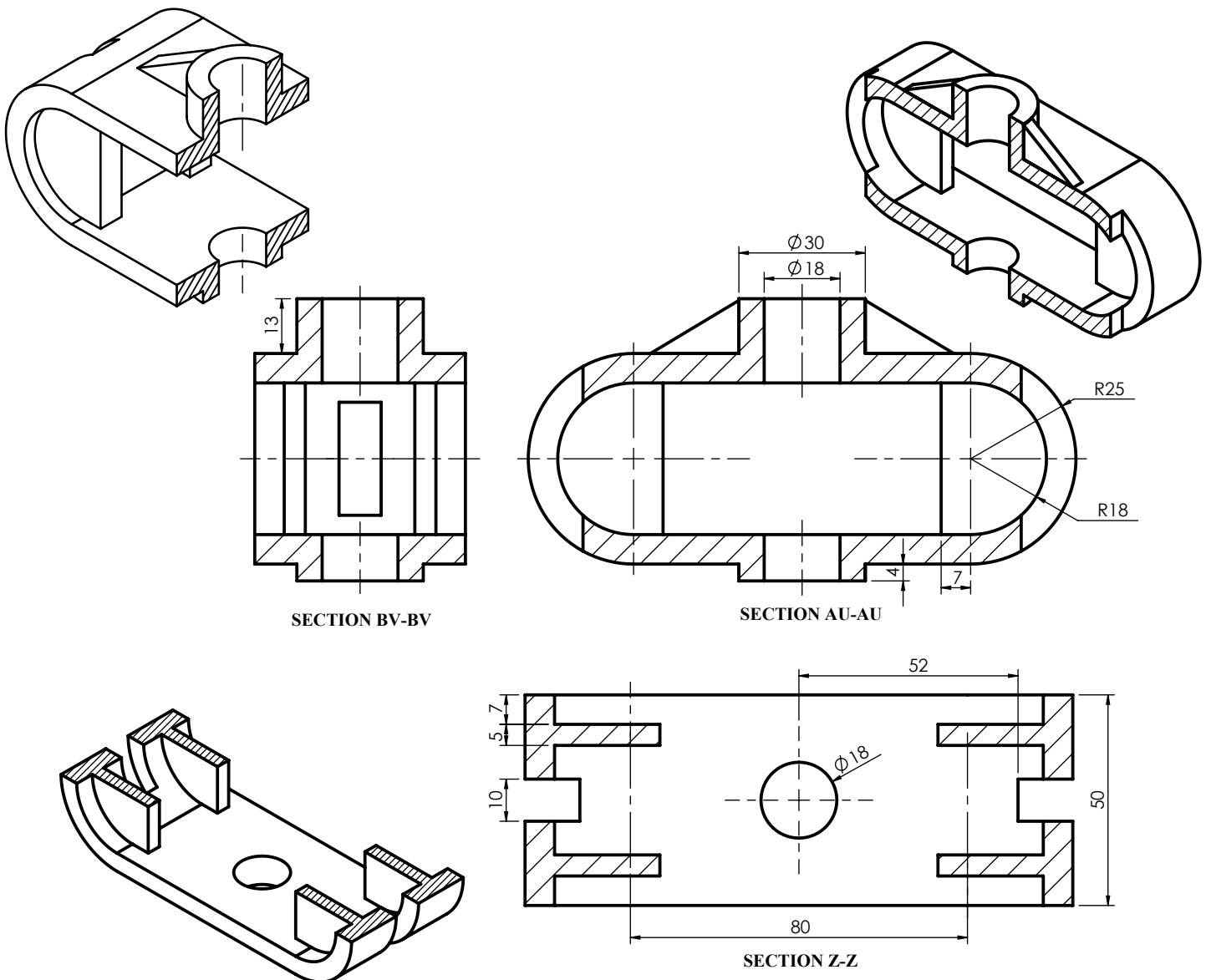
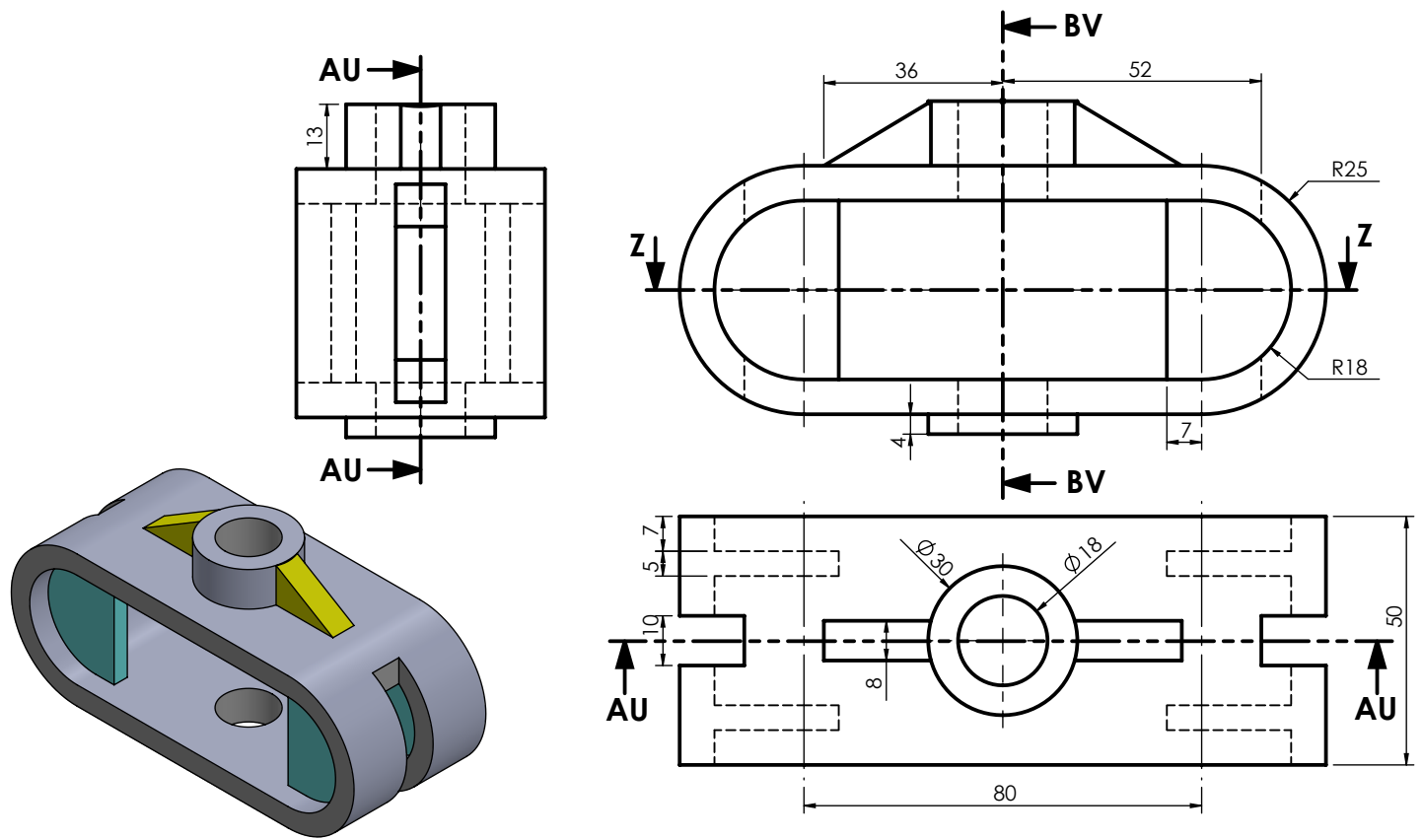
- Level 2

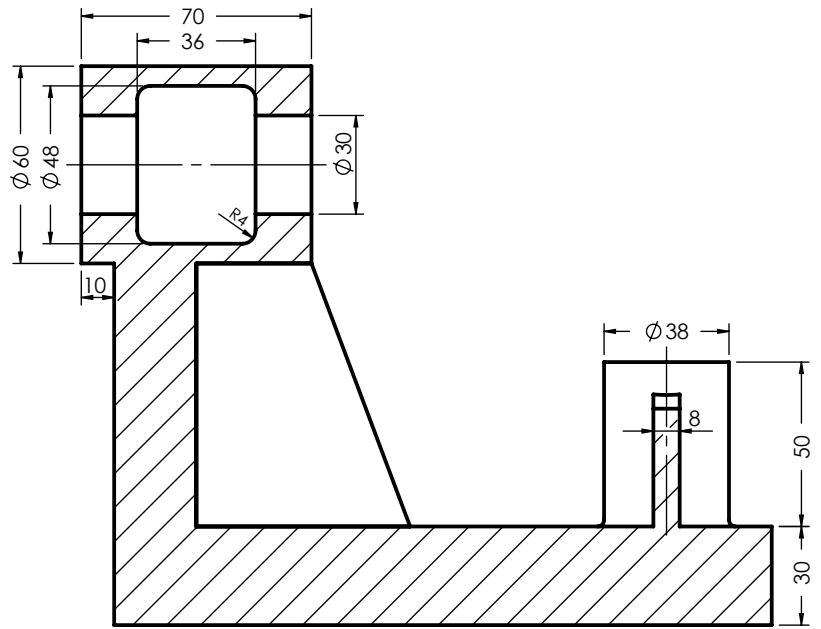
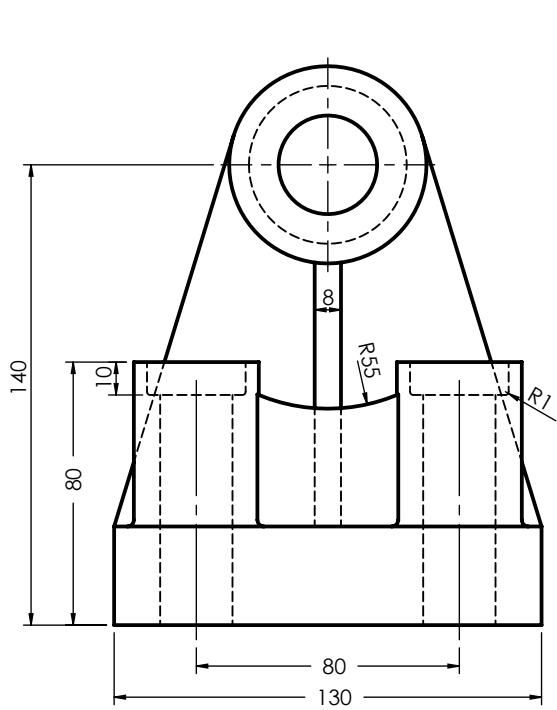


(10)

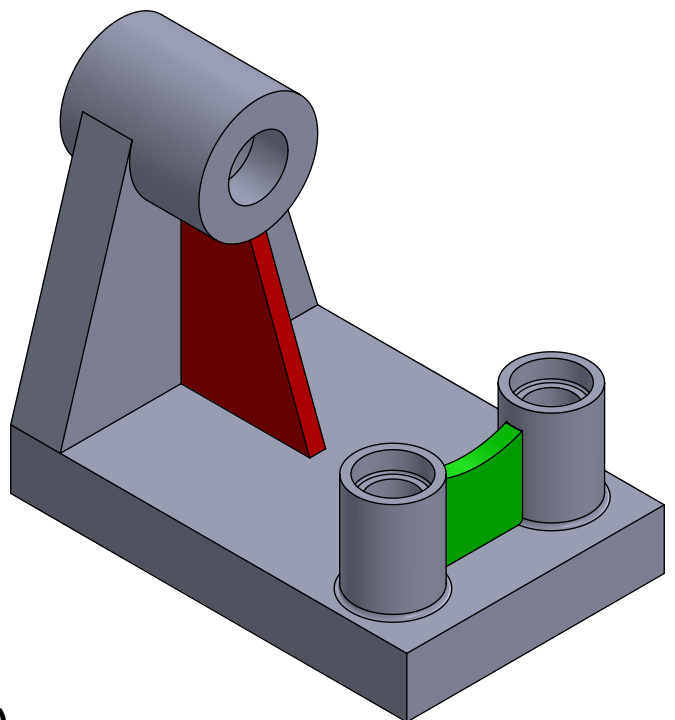
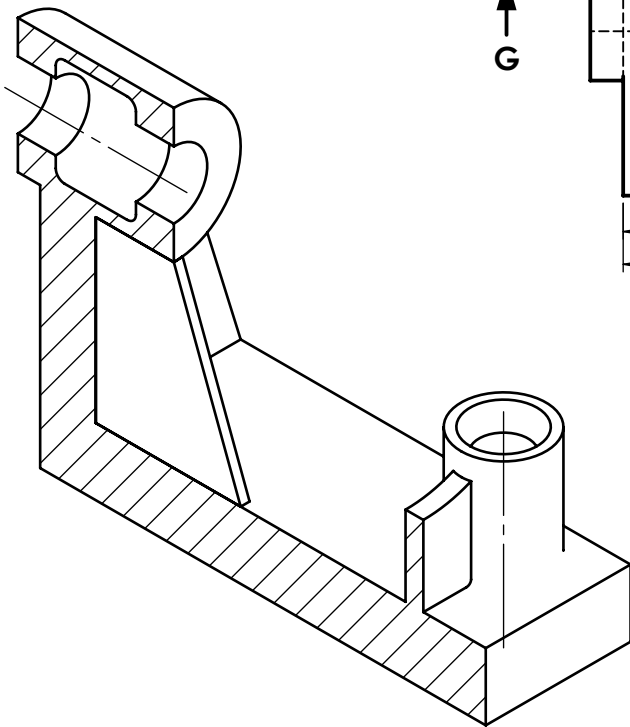
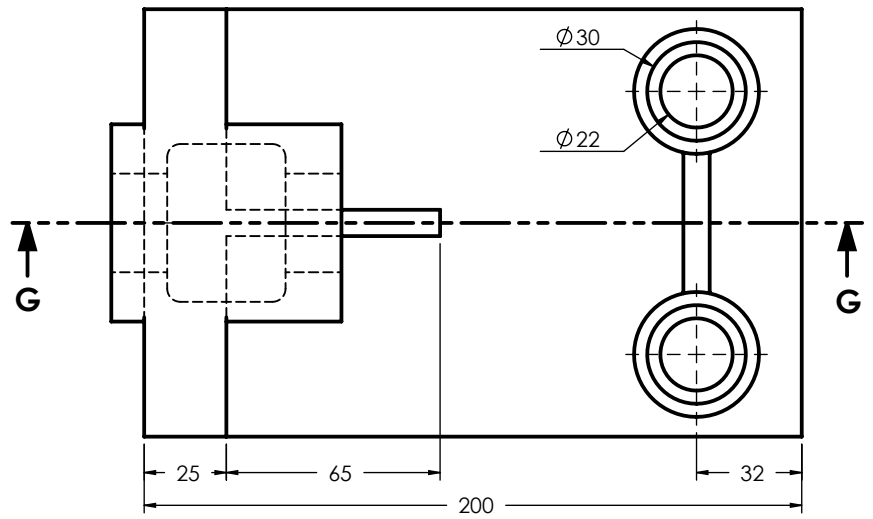


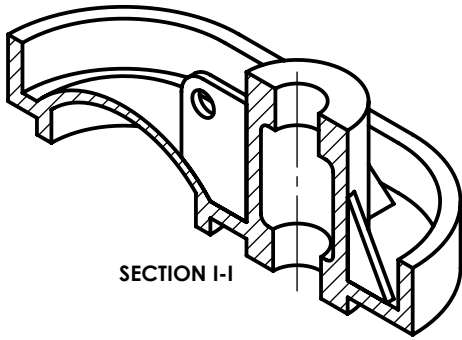
(11)



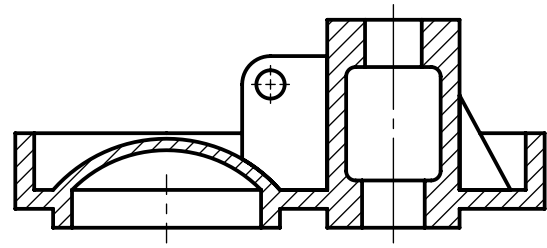


SECTION G-G

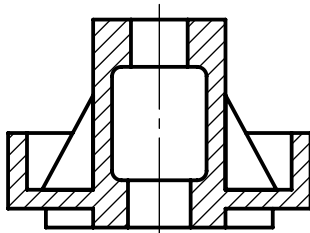




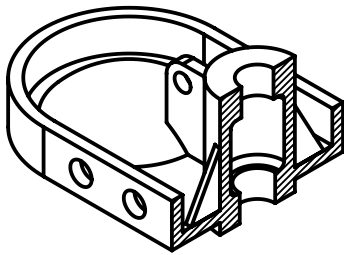
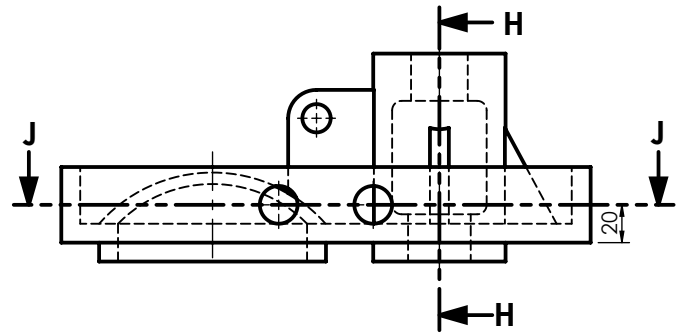
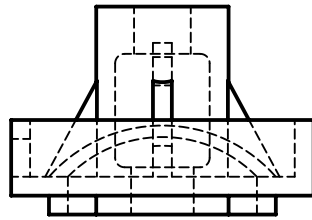
SECTION I-I



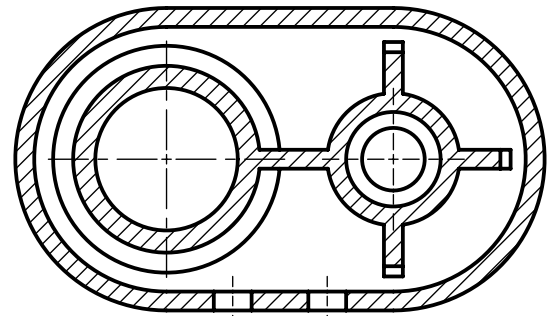
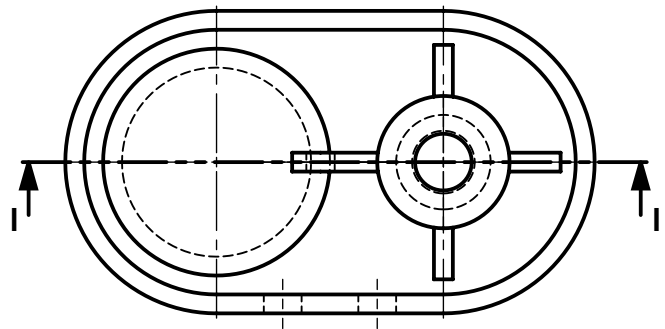
SECTION I-I



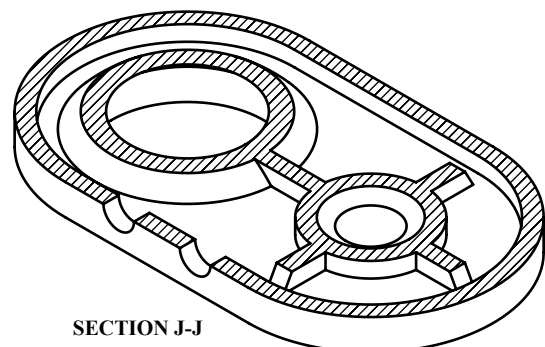
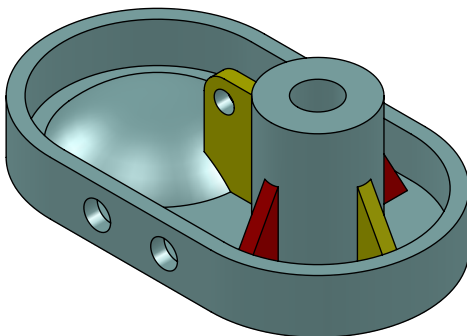
SECTION H-H



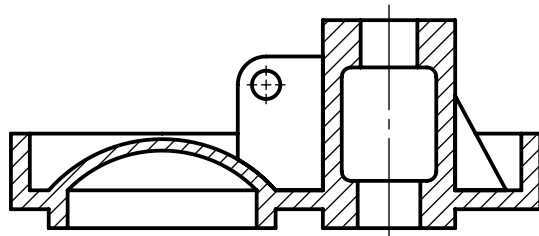
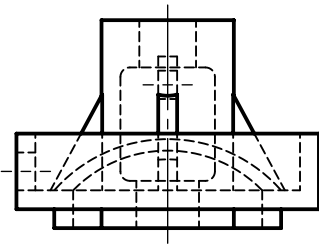
SECTION H-H



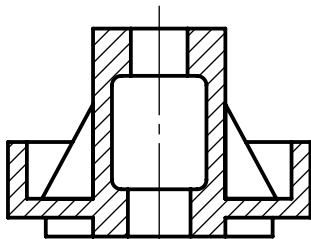
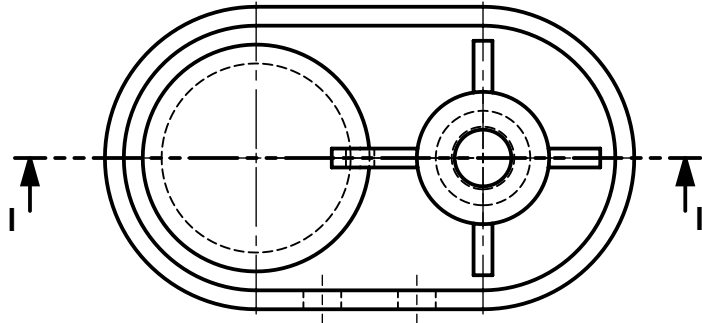
SECTION J-J



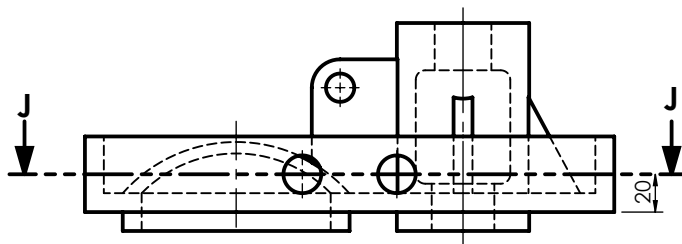
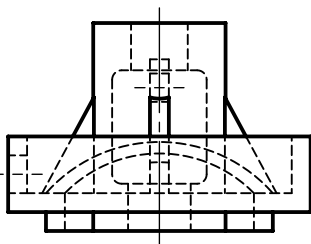
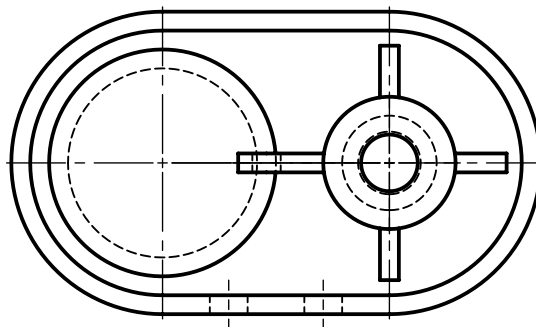
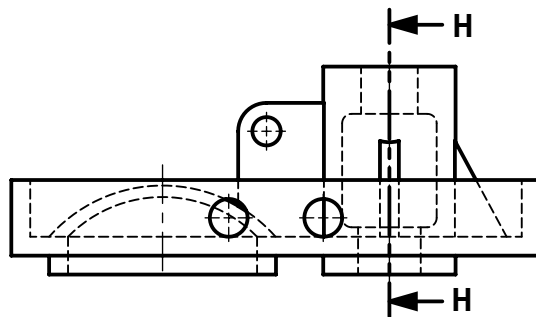
SECTION J-J

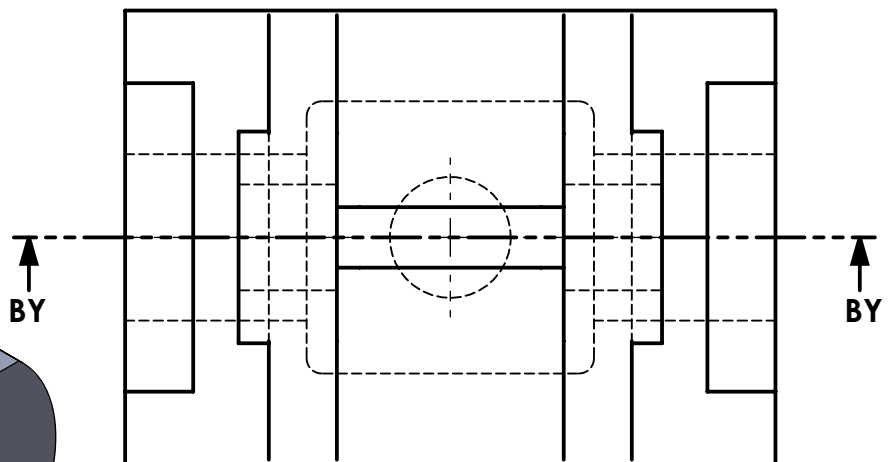
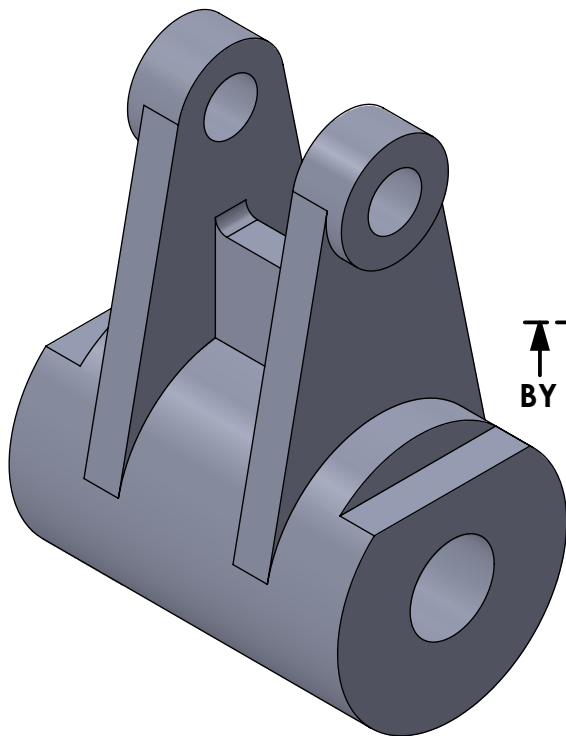
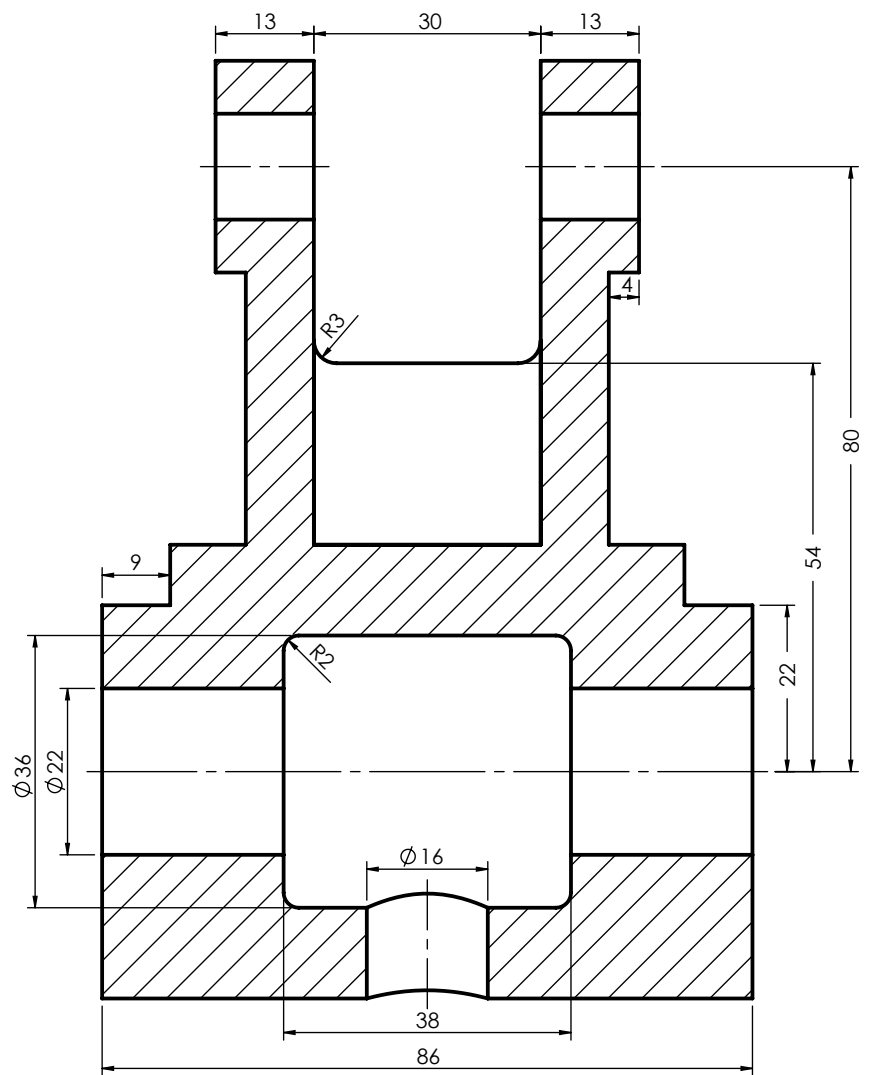
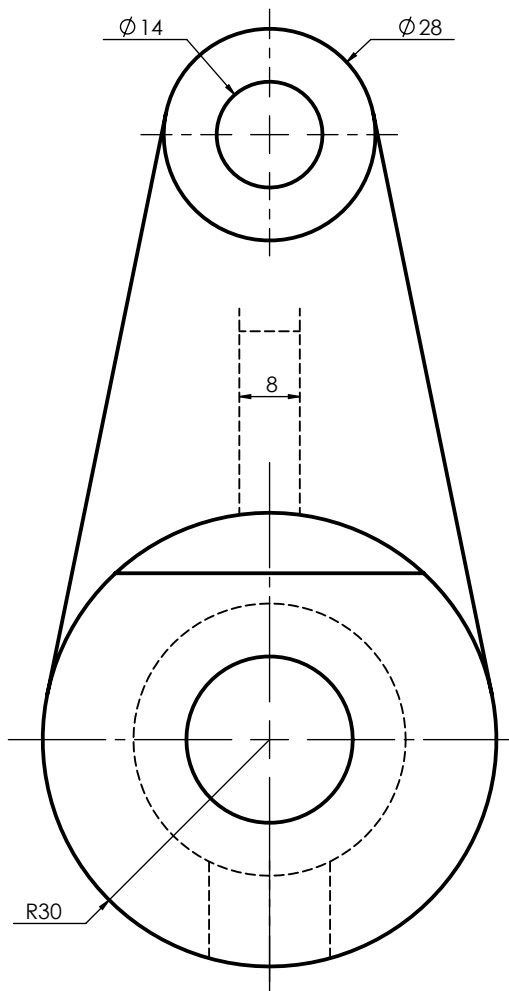


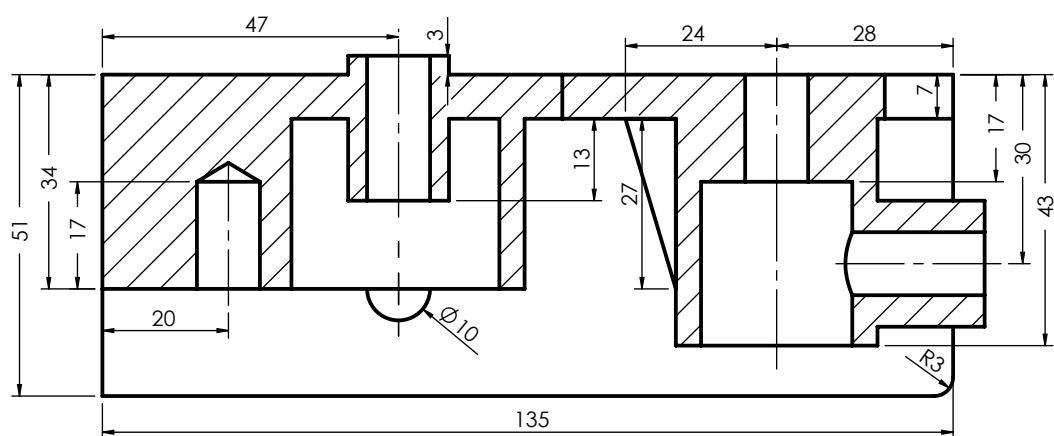
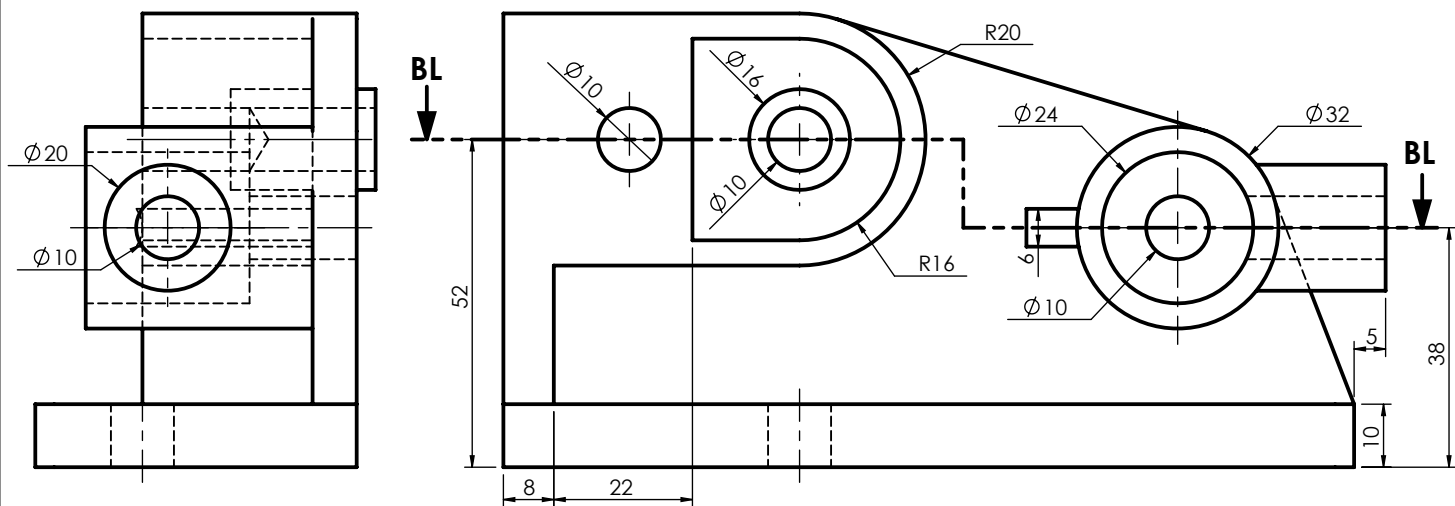
SECTION I-I



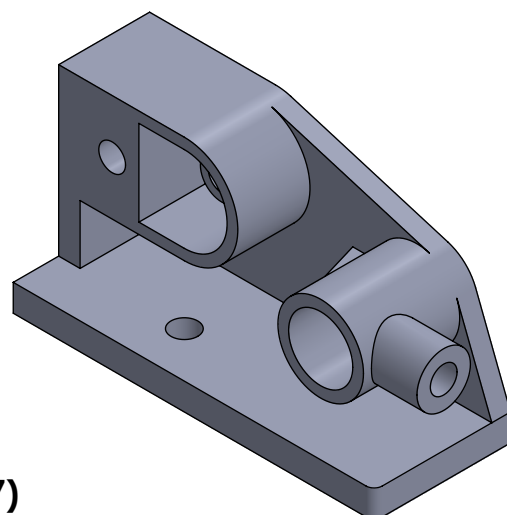
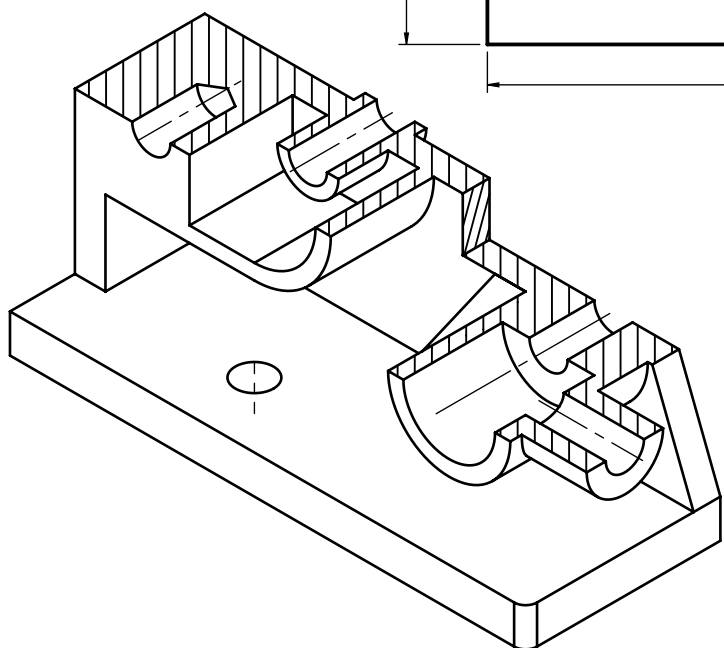
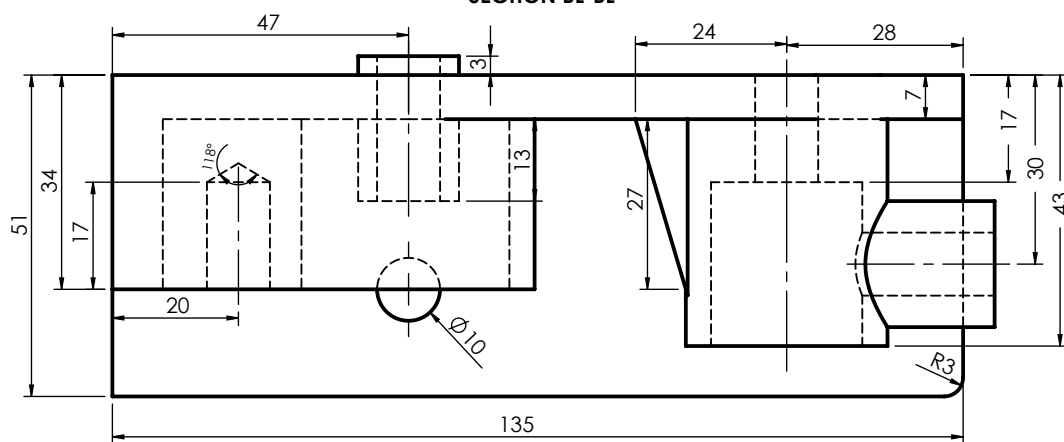
SECTION H-H

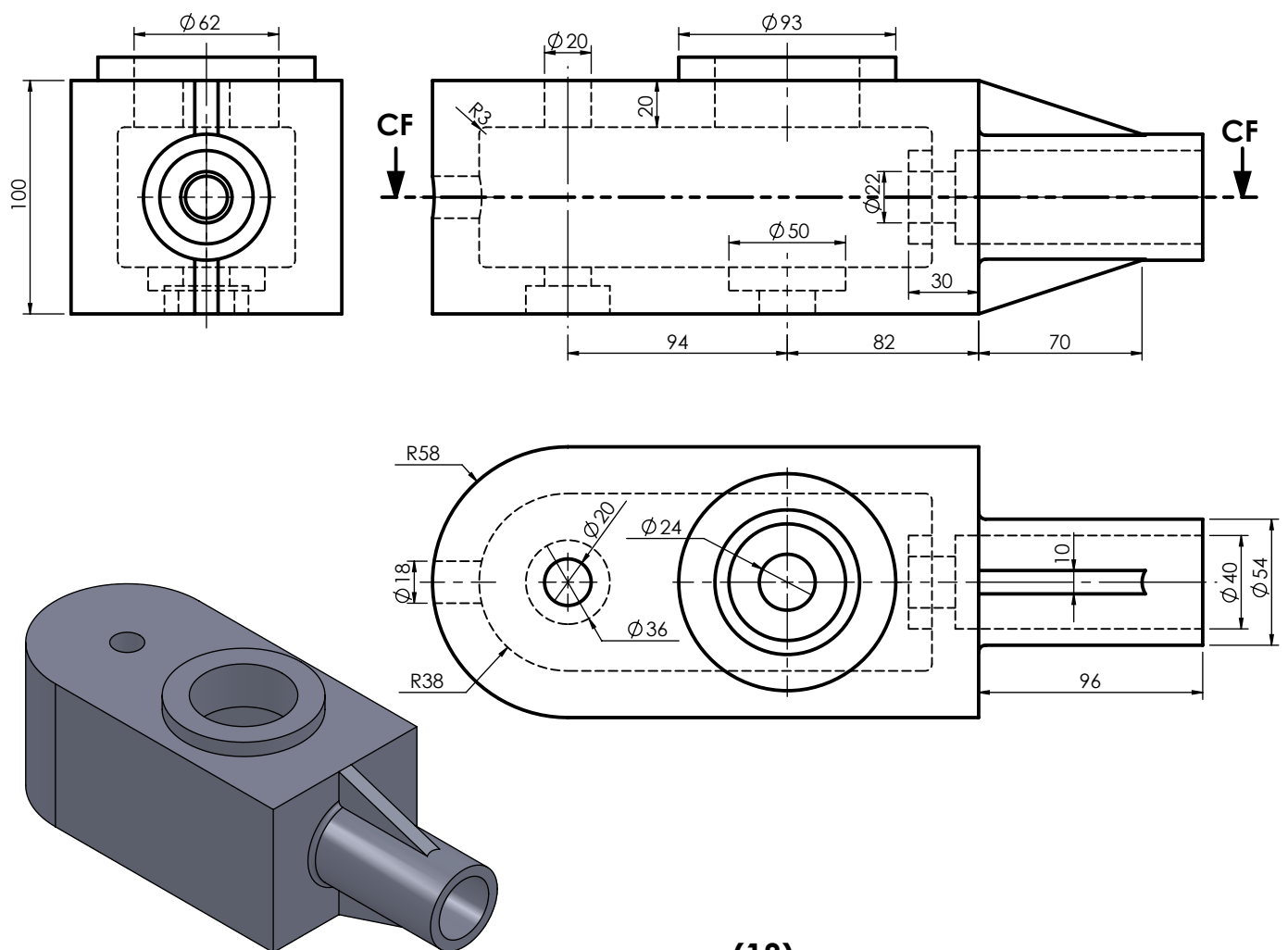
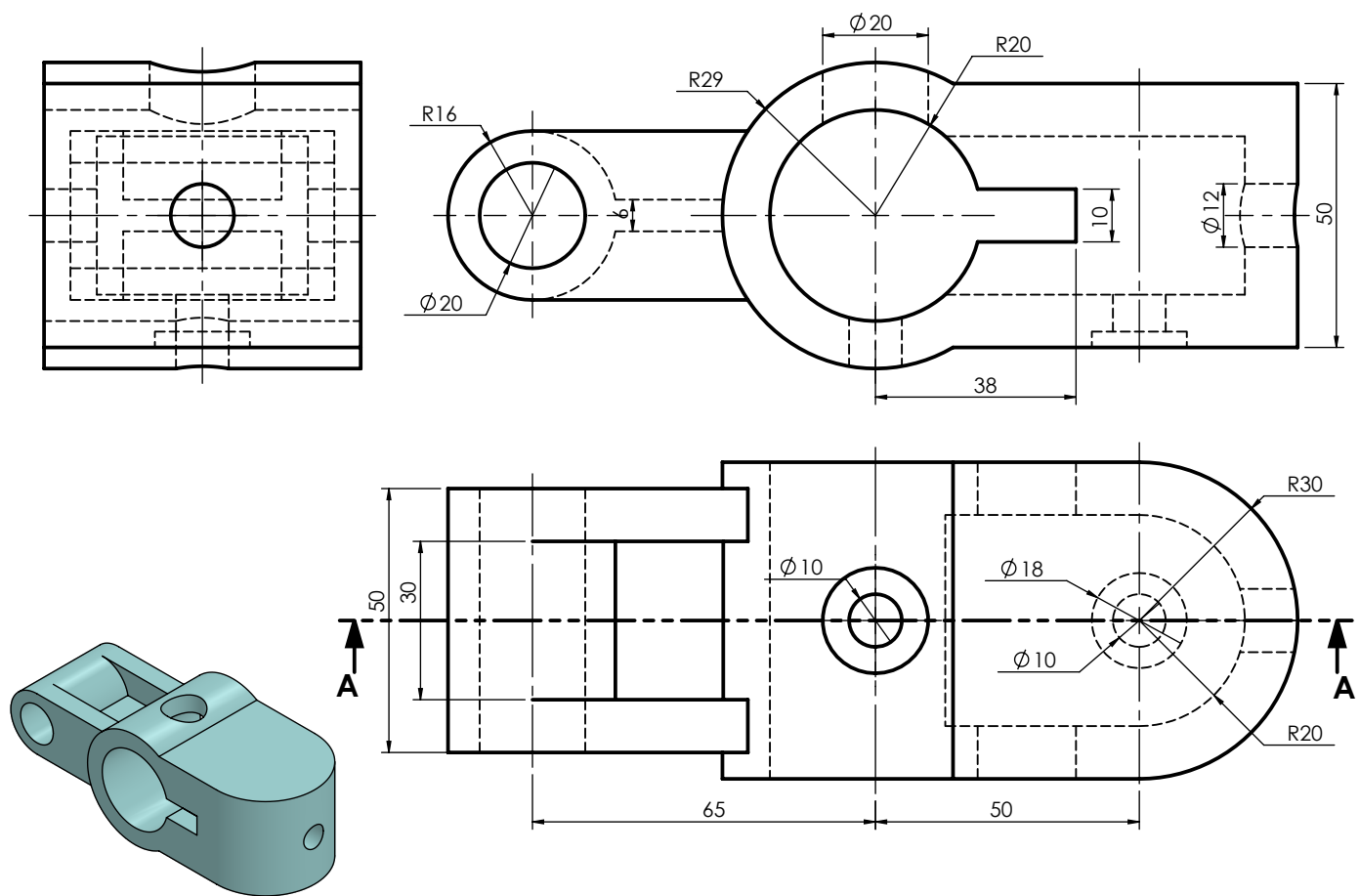


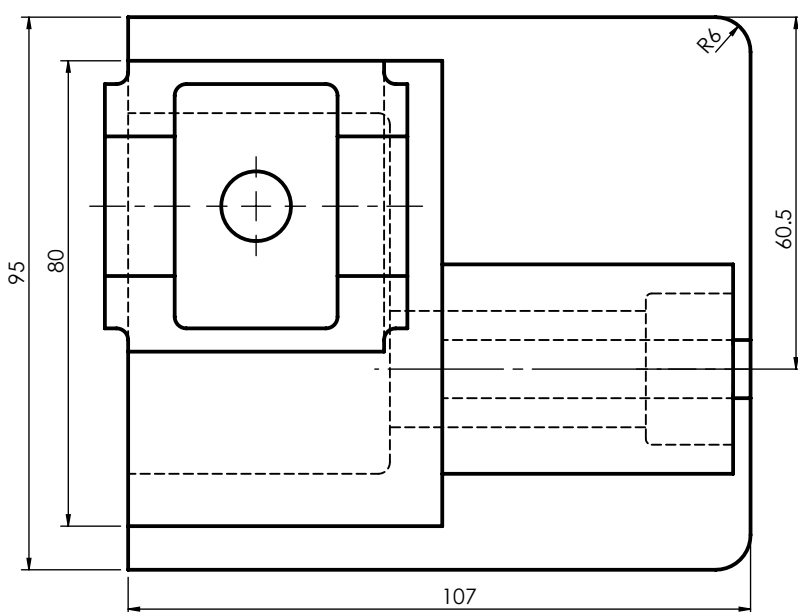
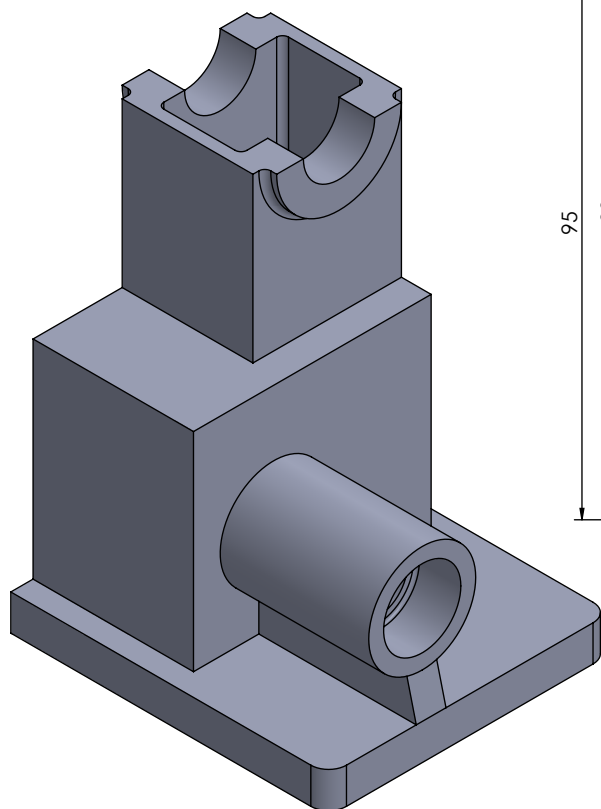
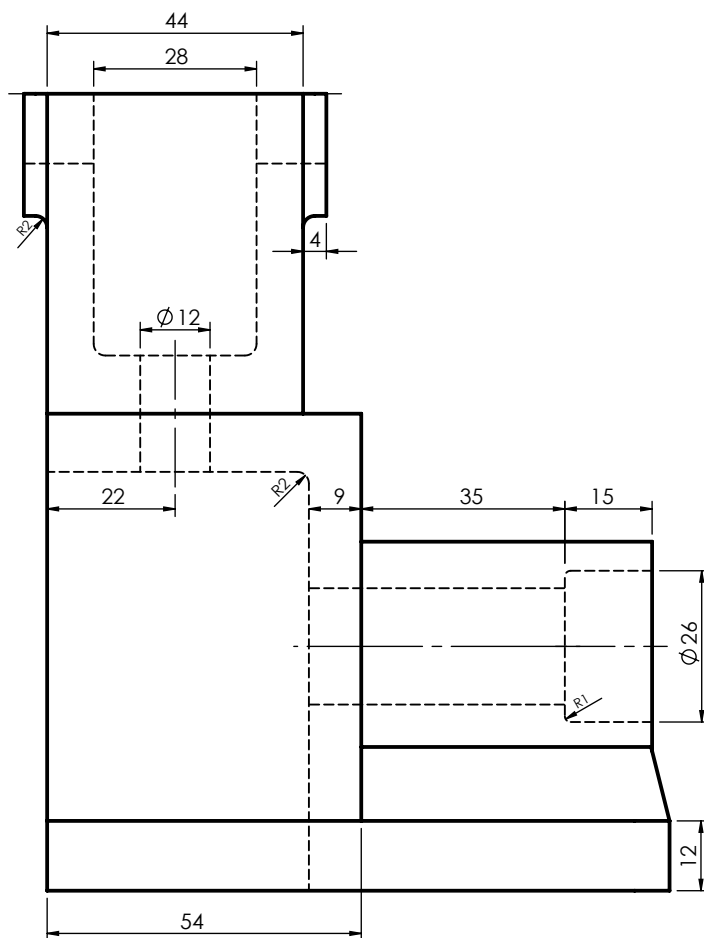
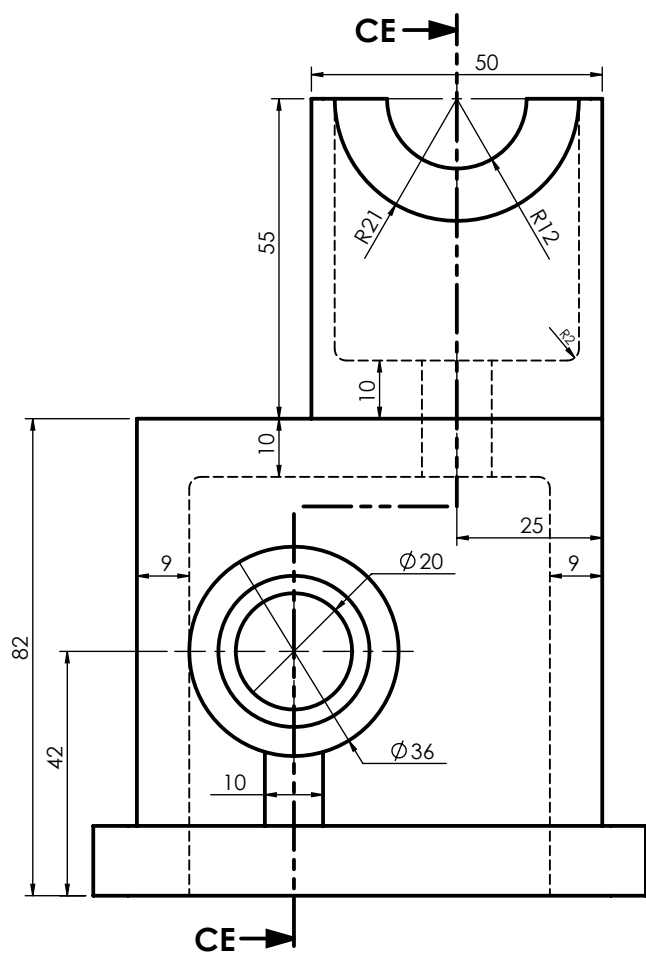




SECTION BL-BL







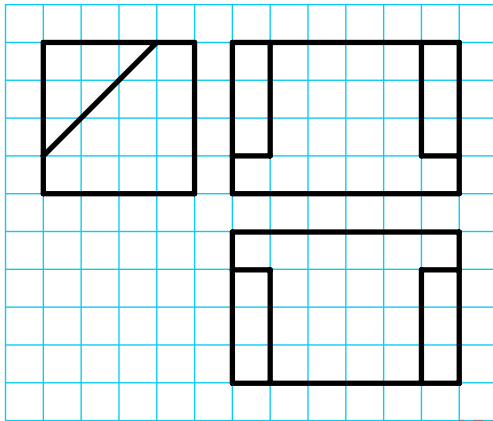
Sketch Entities:

Sketch Tools :

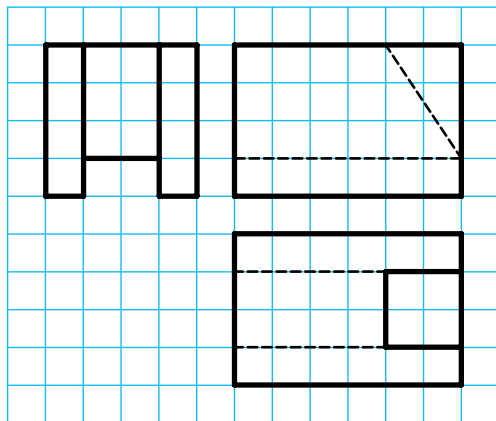
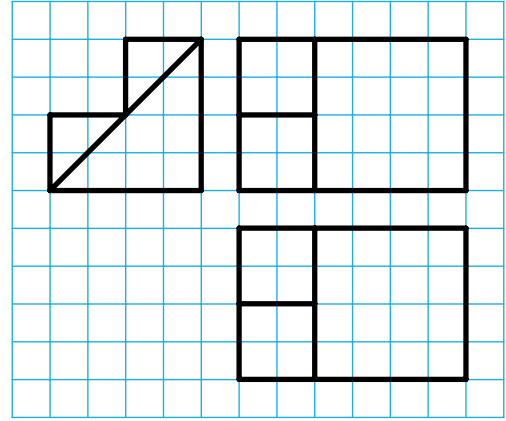
Feature :

Problems: From the following projection views create the 3D model.

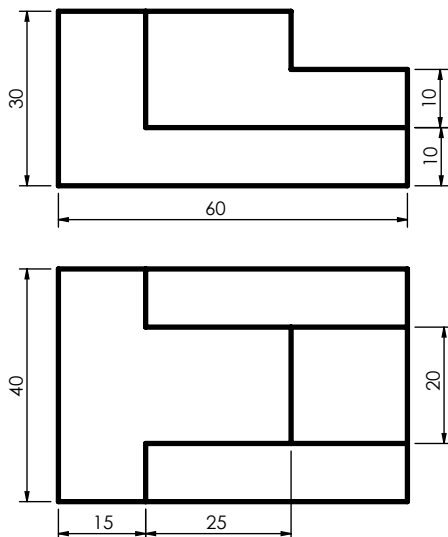
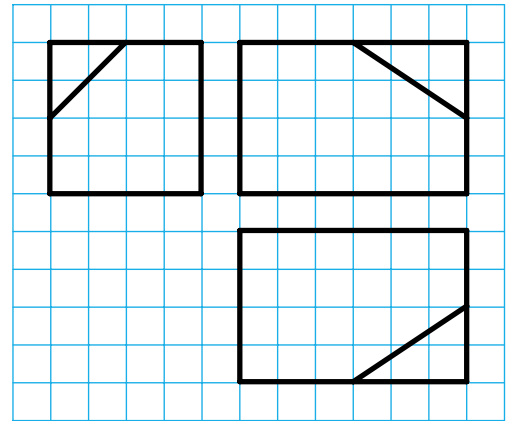
CLASSWORK



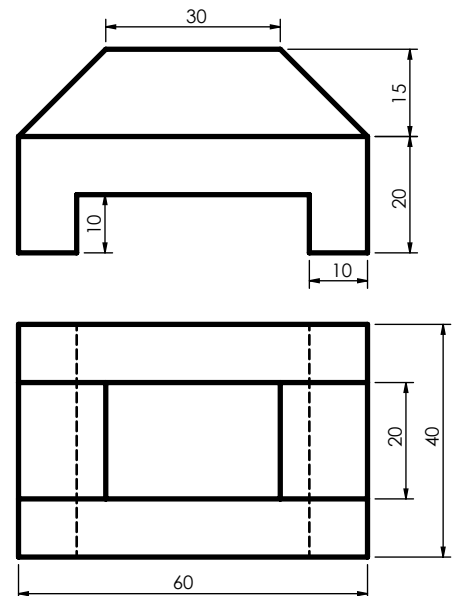
(1) (2)

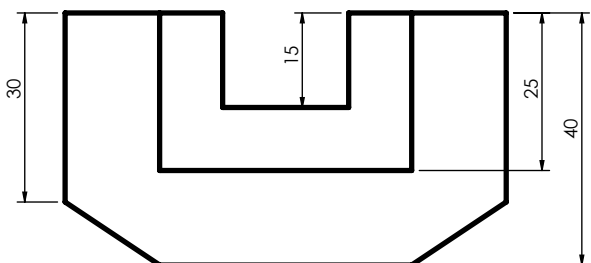
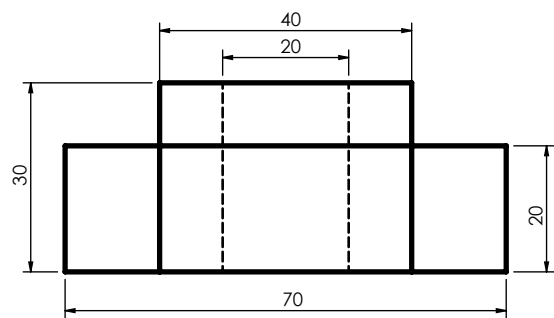


(3) (4)

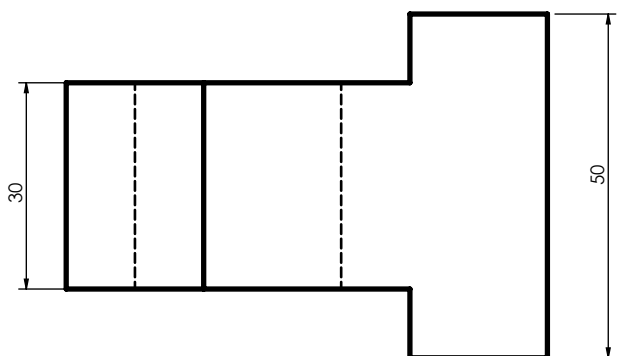
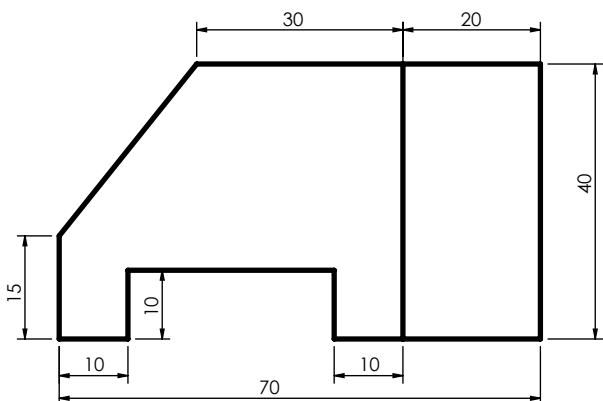
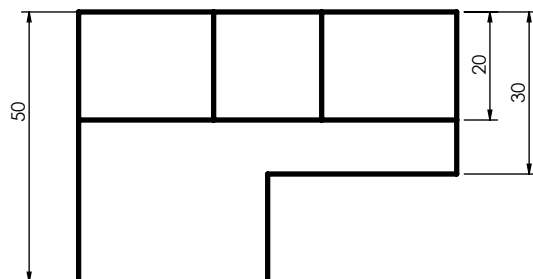
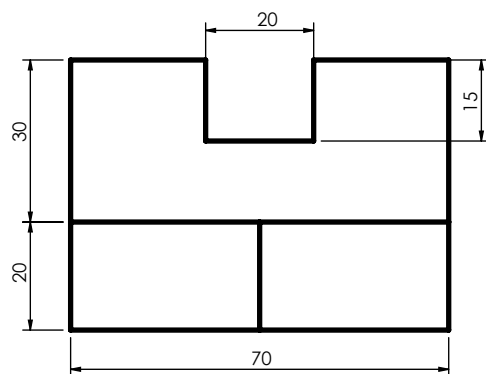


(5) (6)

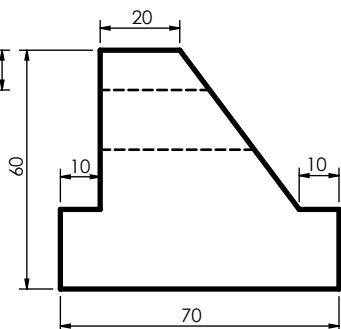
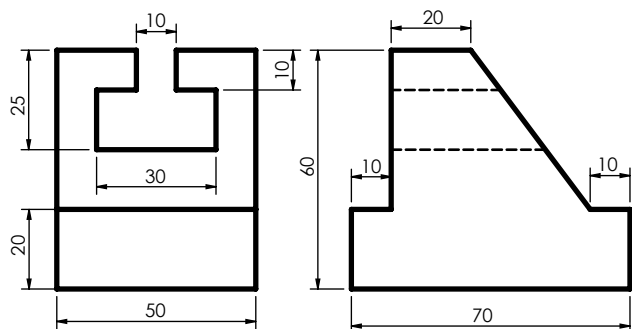
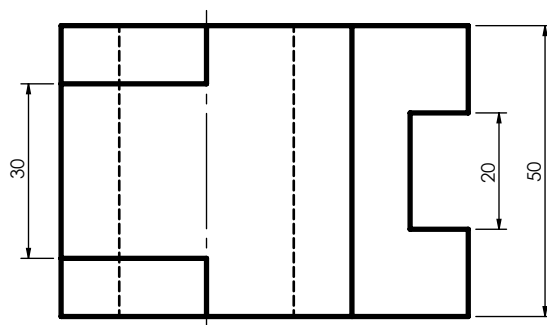
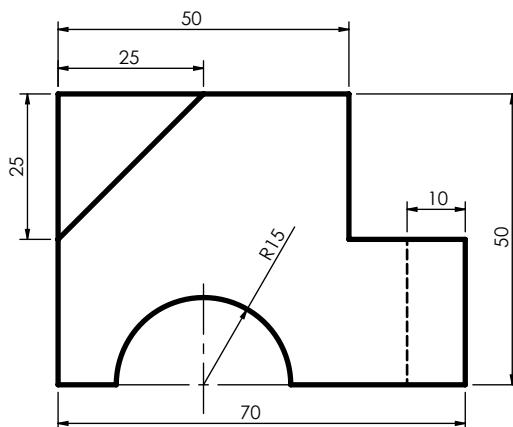




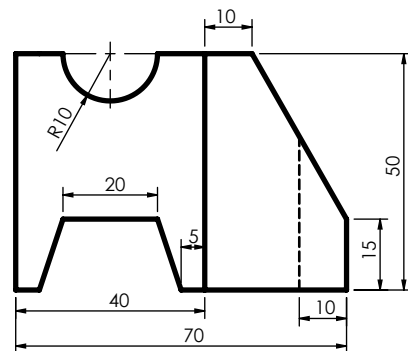
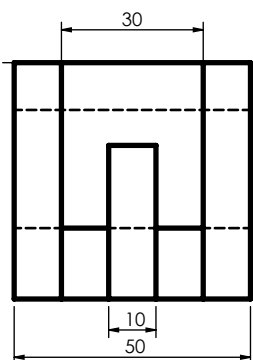
(7) (8)



(9) (10)

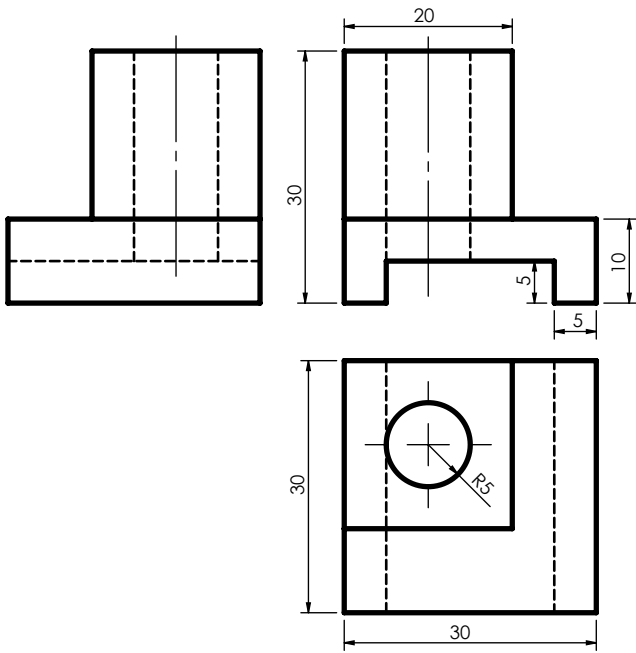


(11) (12)

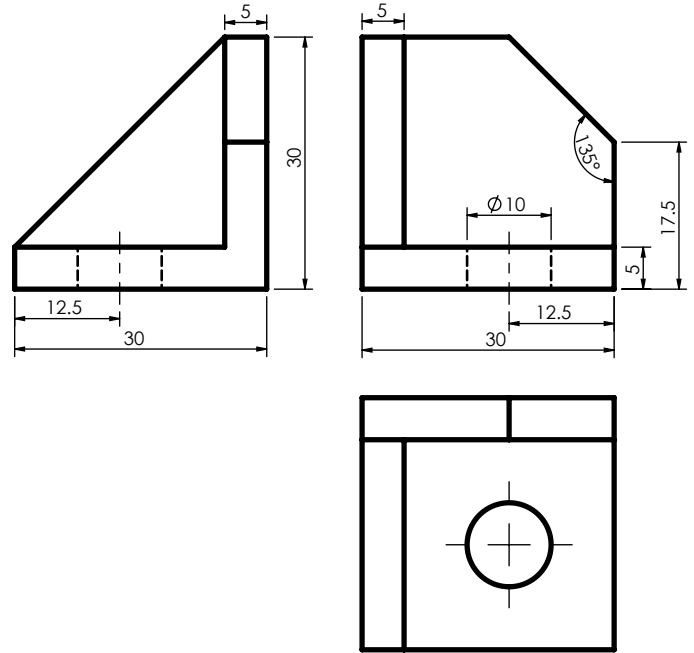


HOMWORK

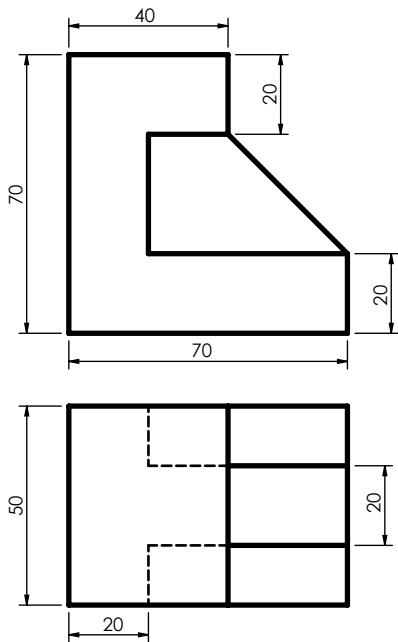
- Level 1



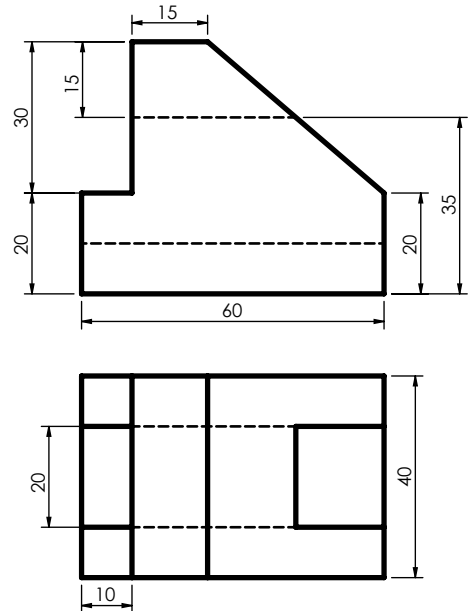
(13)



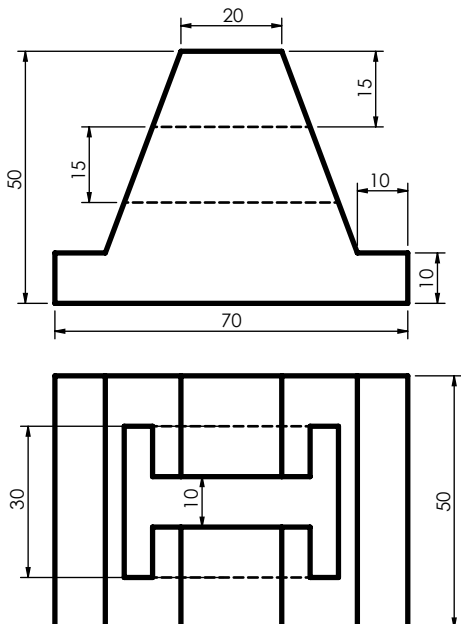
(14)



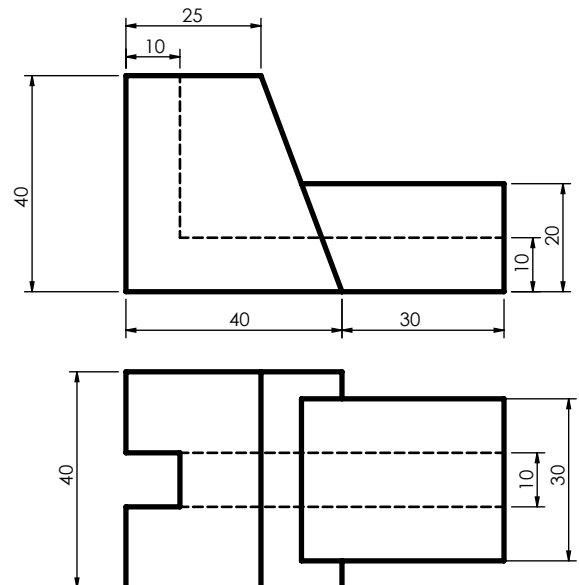
(15)



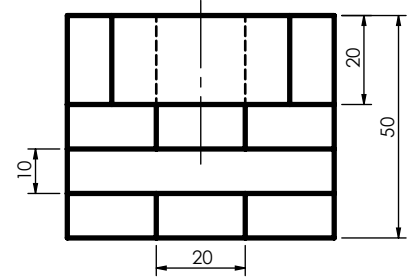
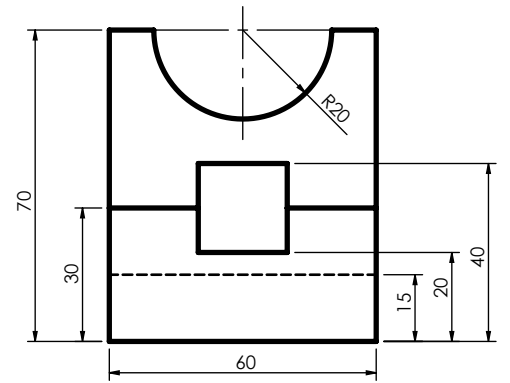
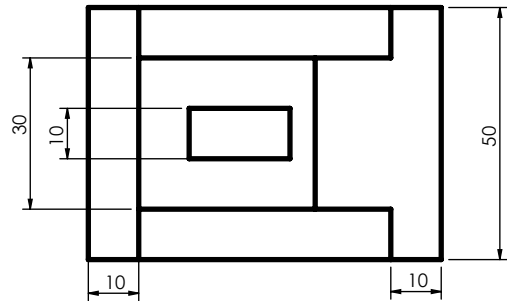
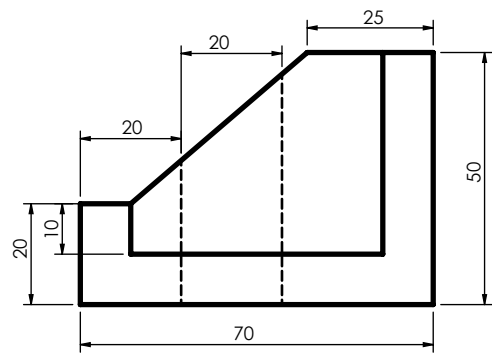
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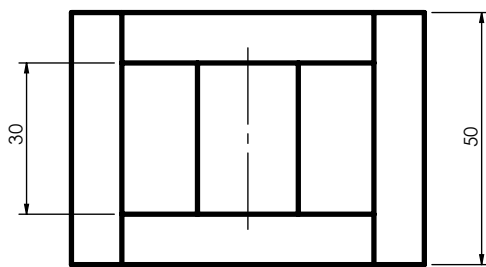
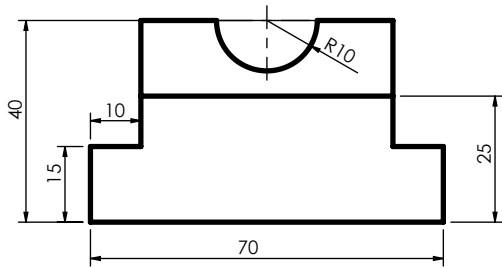
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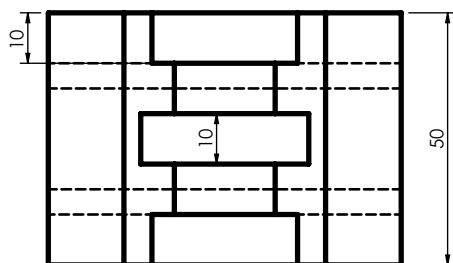
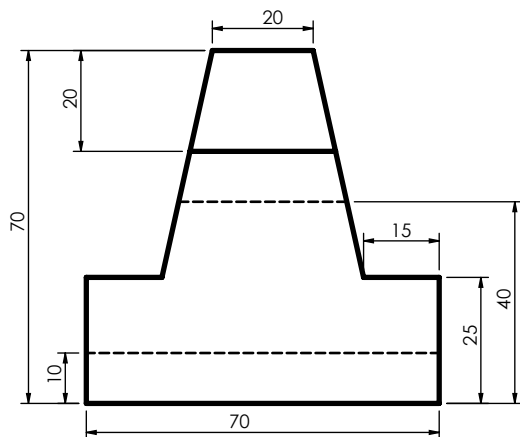
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(19) (20)

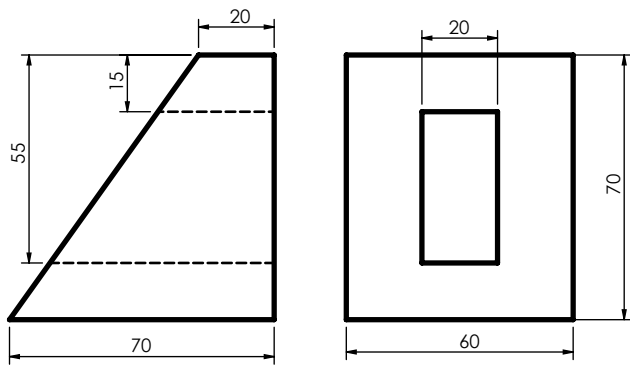


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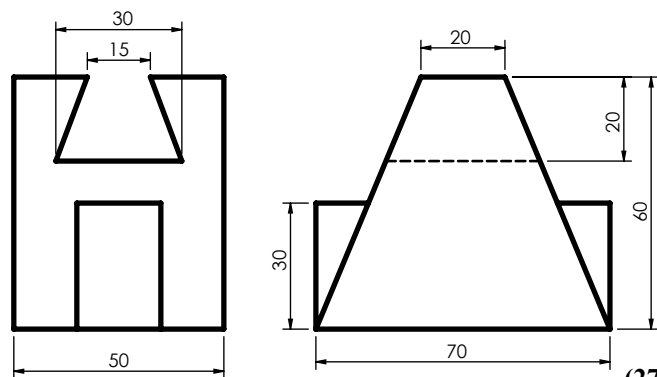
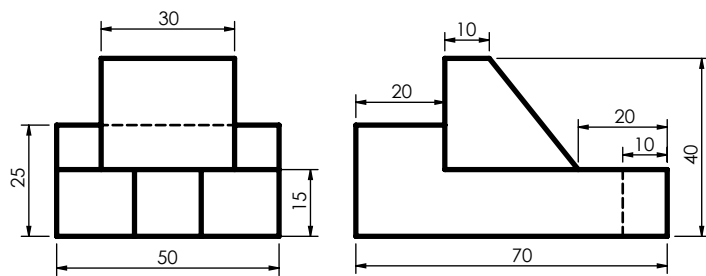


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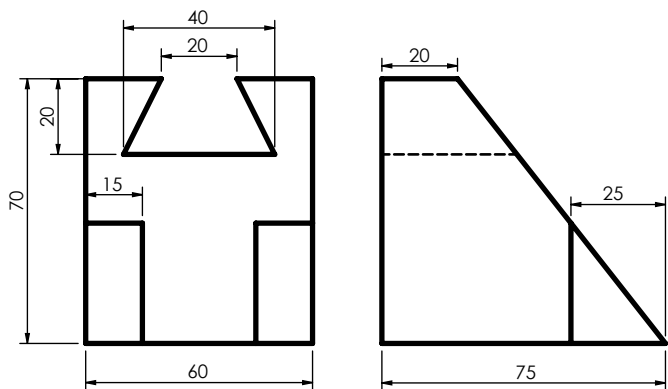
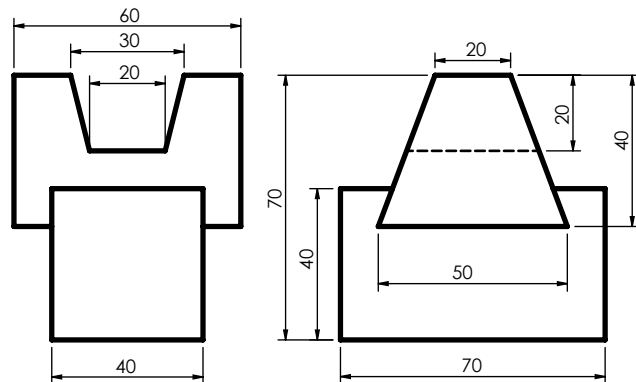
- Level 2



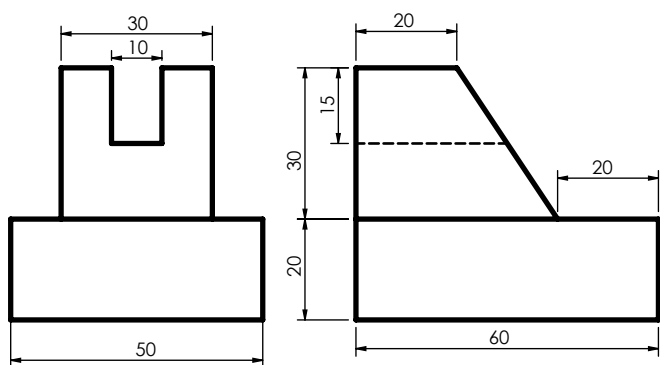
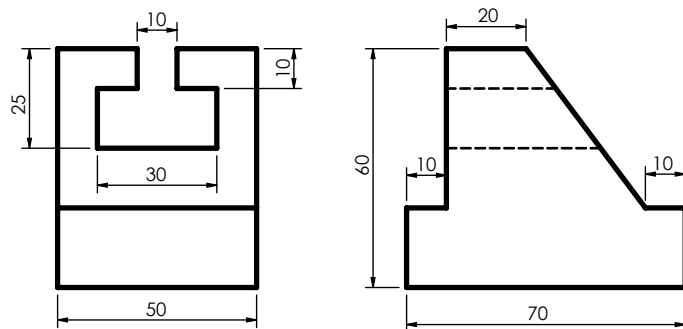
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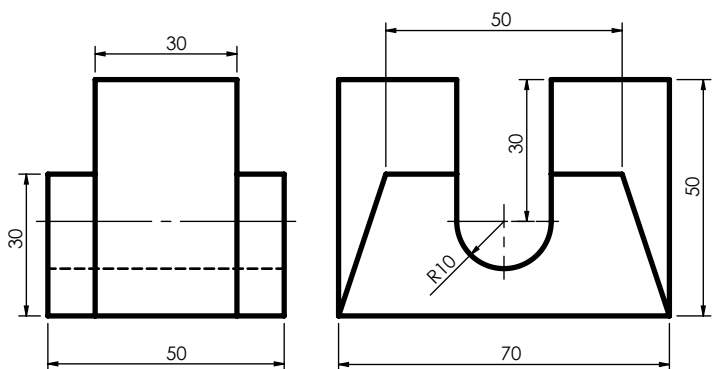
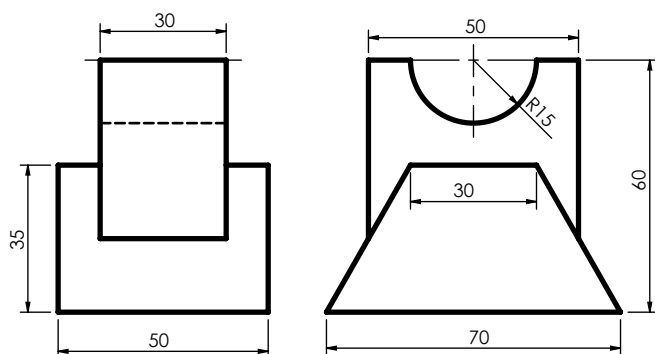
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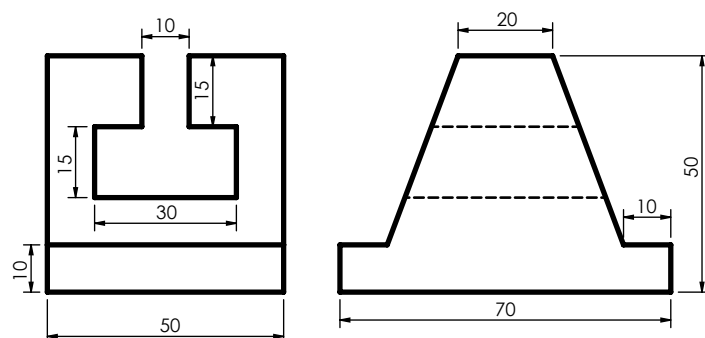
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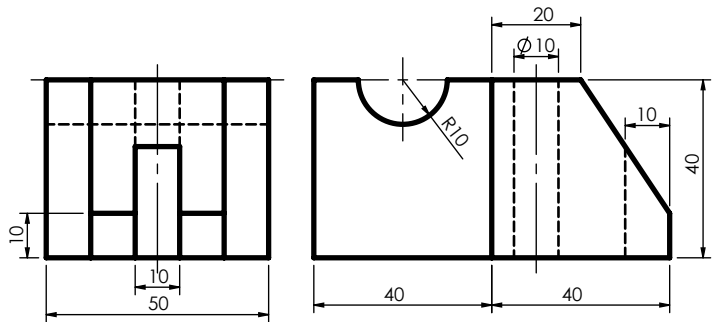
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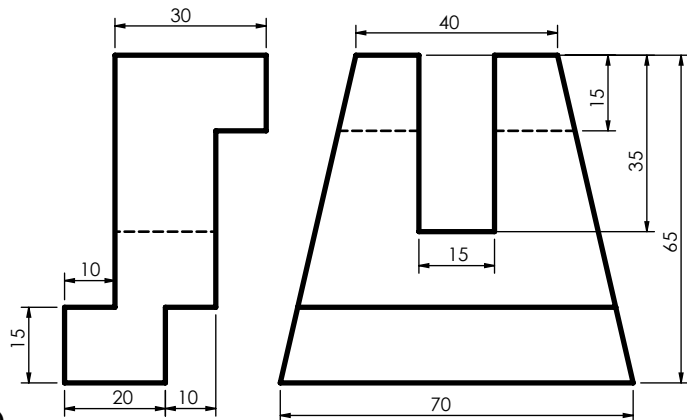
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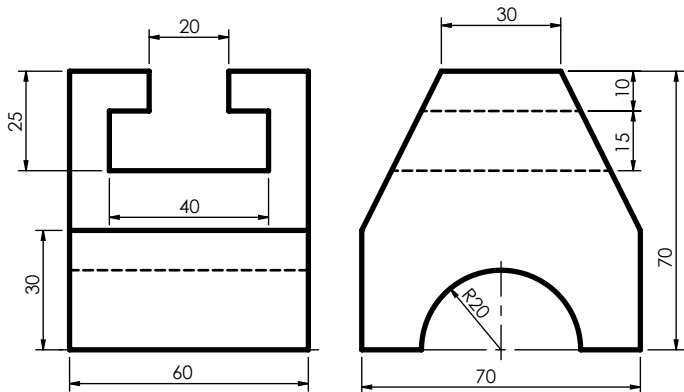
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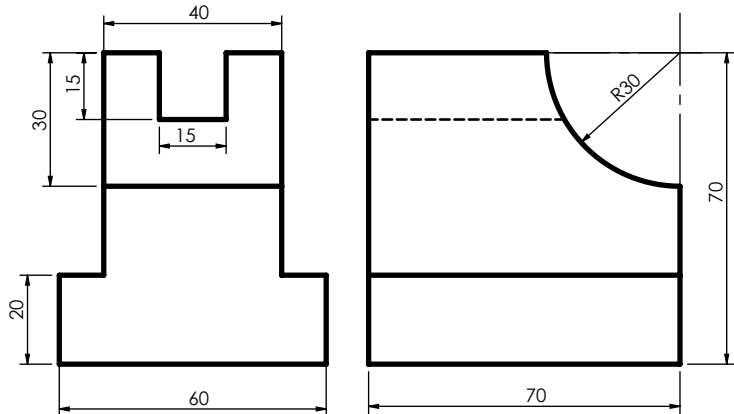
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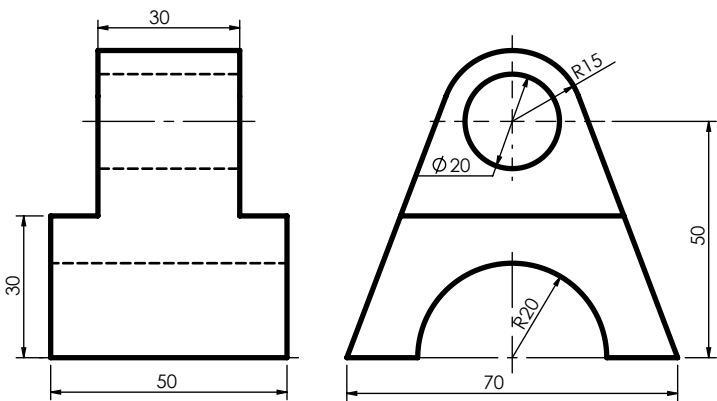
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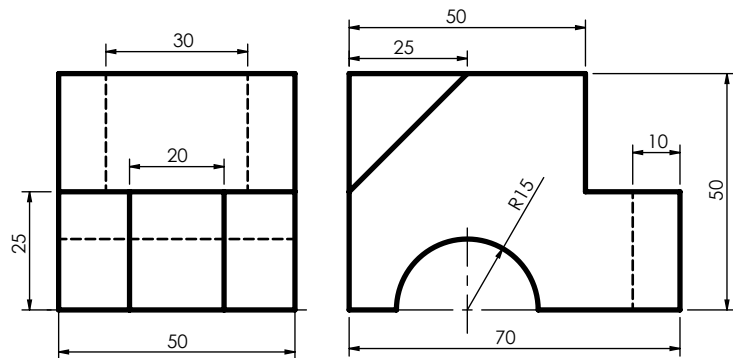
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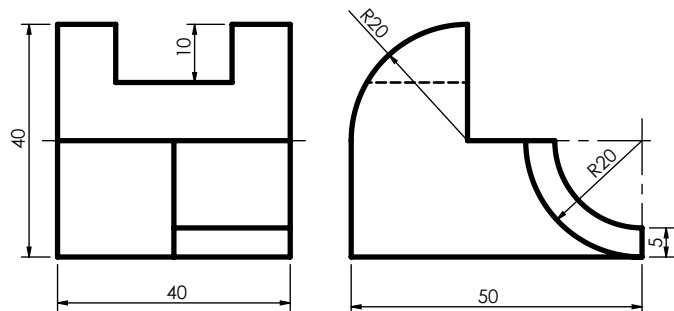
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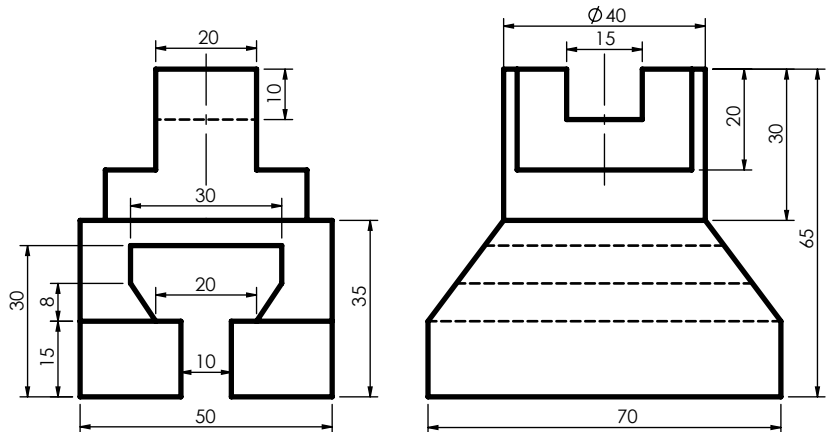
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(40)



(41)

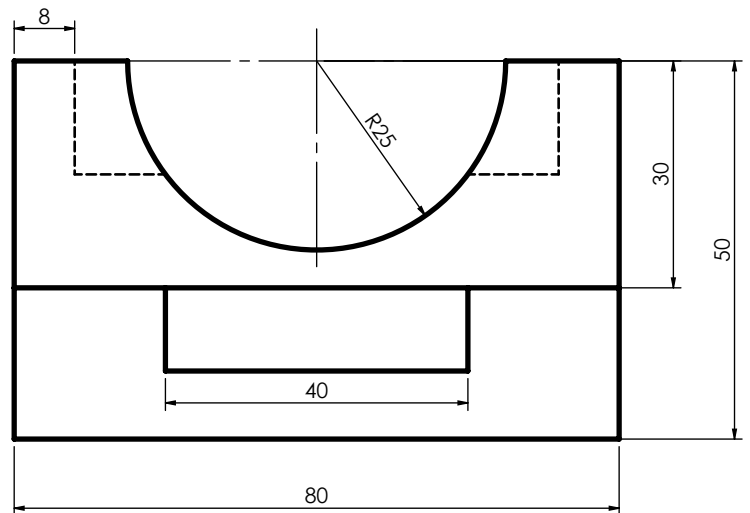
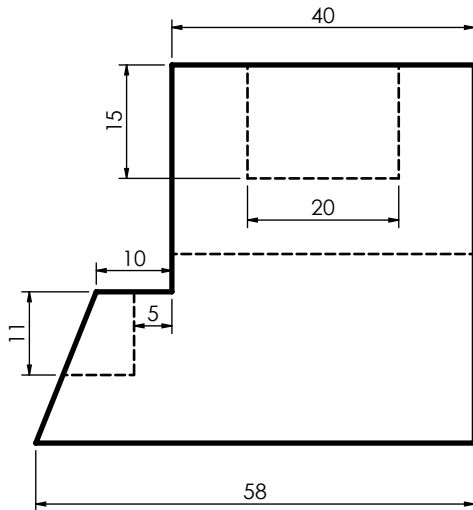


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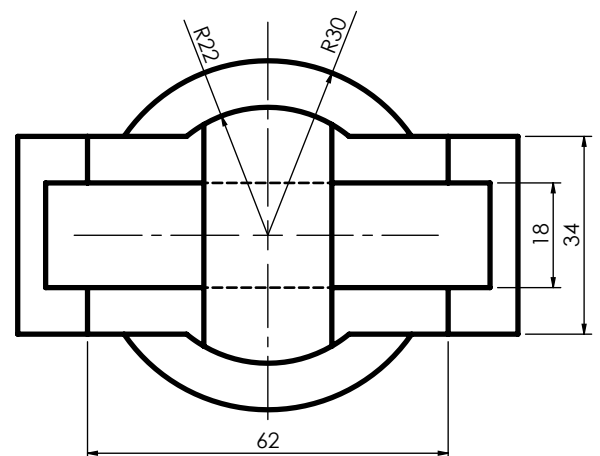
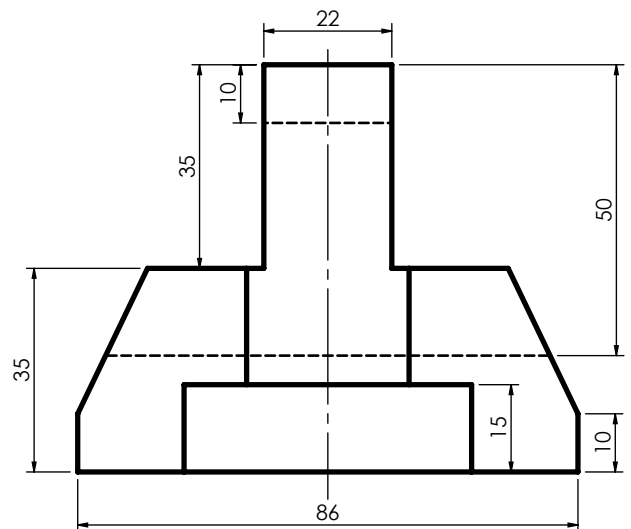
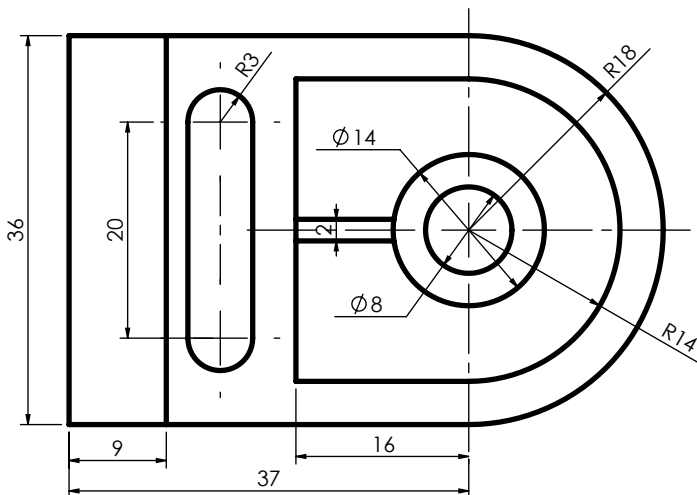
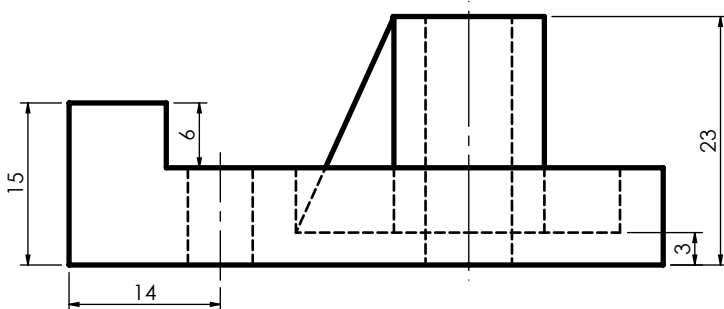
Sketch Entities:	
Sketch Tools :	
Feature :	

Problems: From the following projection create the 3D model

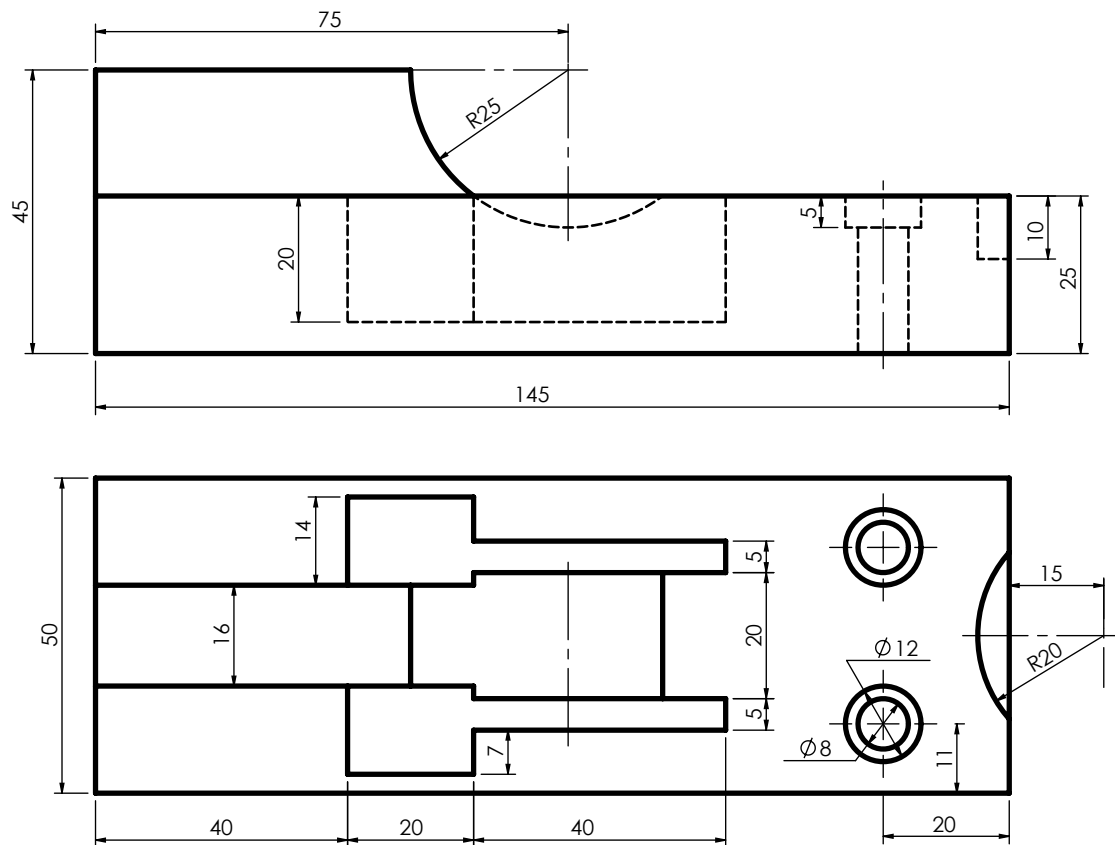
CLASSWORK



(1)



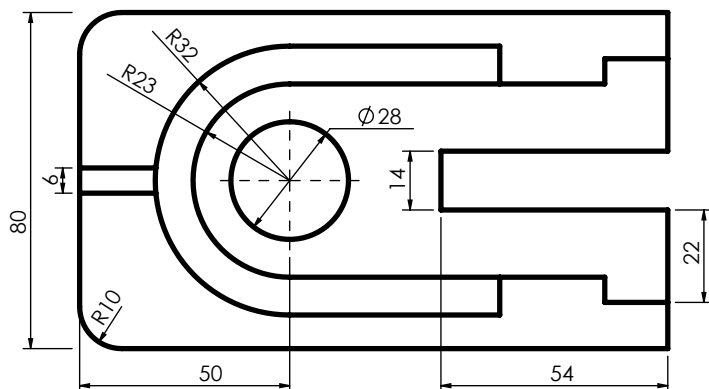
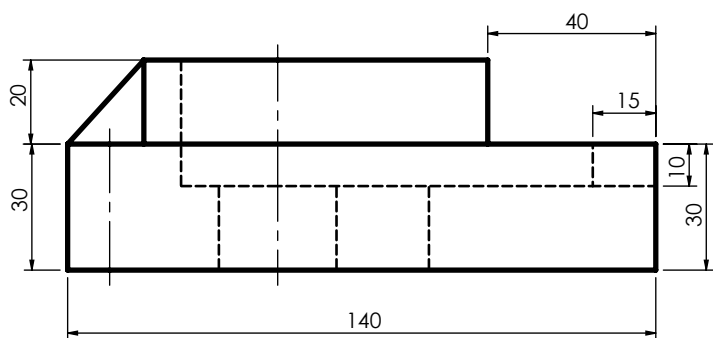
(2) (3)



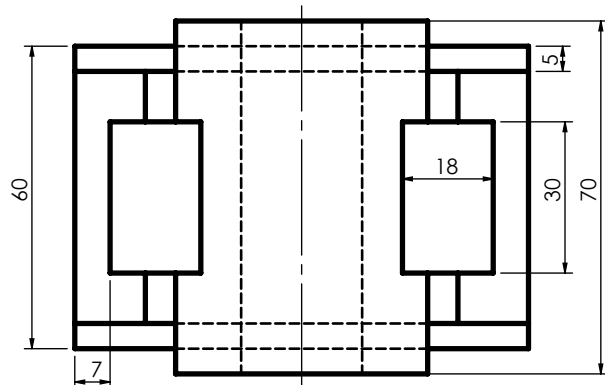
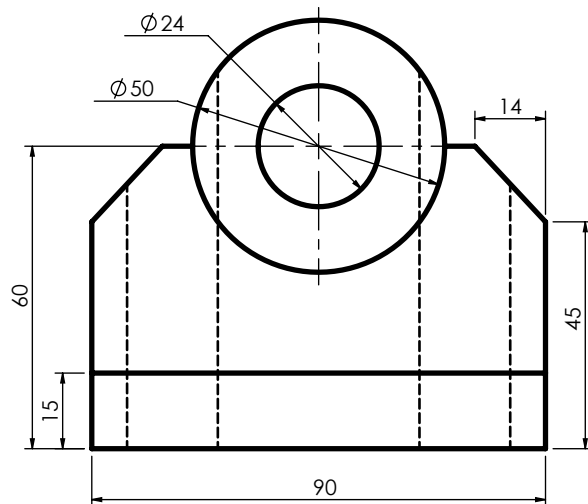
(4)

HOMWORK

- Level 1

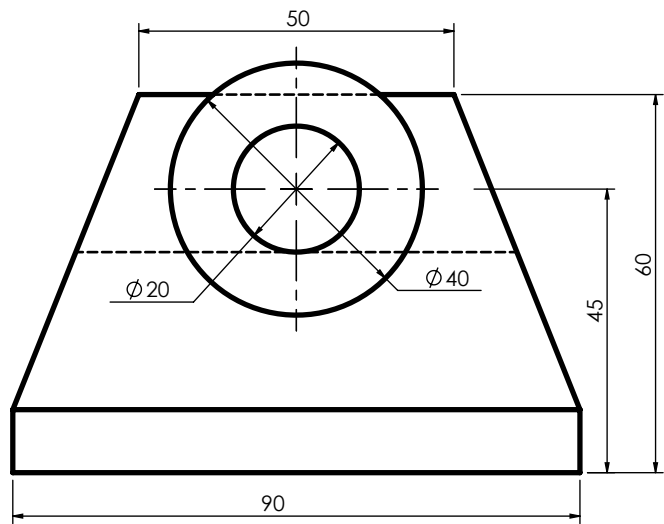
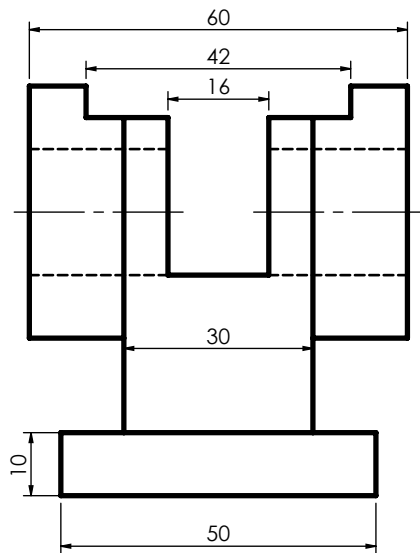


(5)

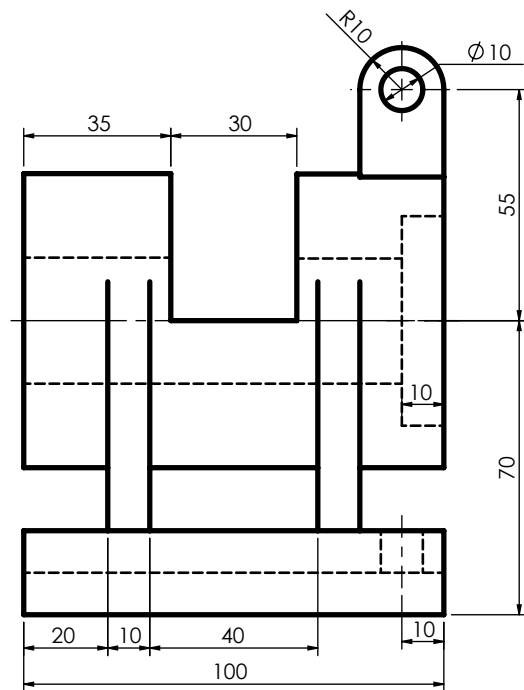
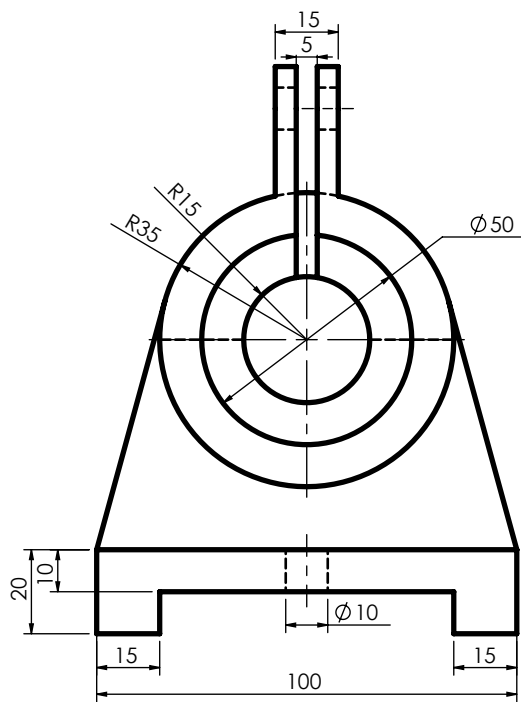


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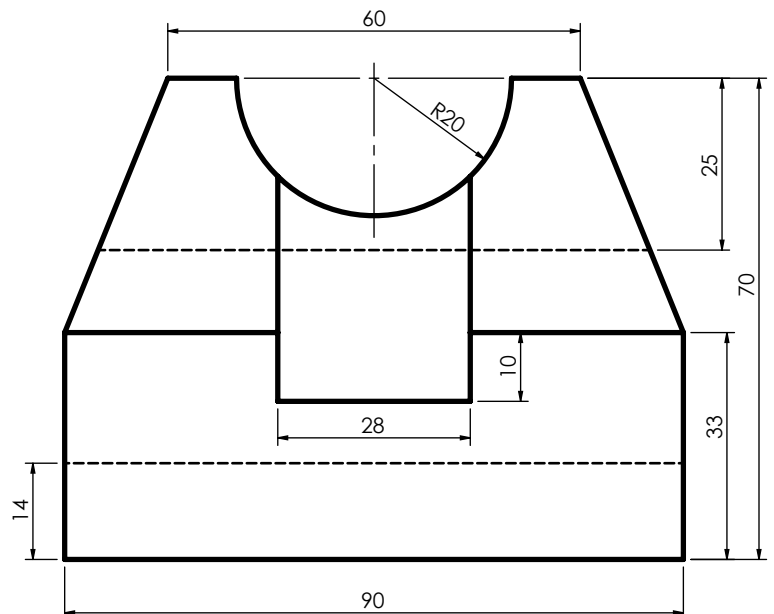
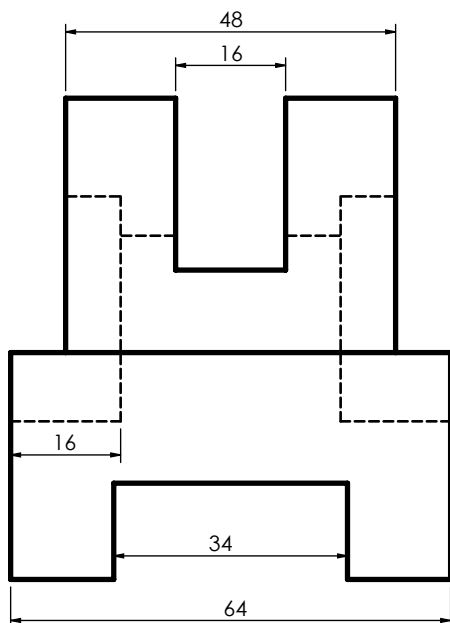
- Level 2



(10)

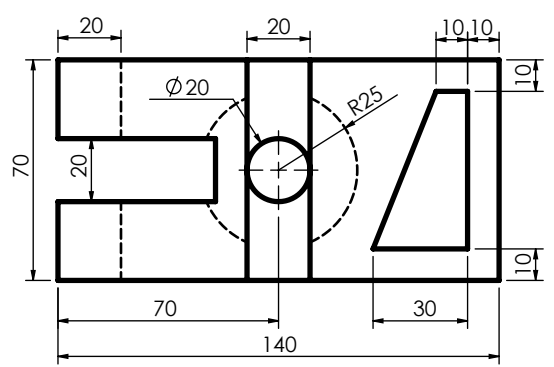


(11)

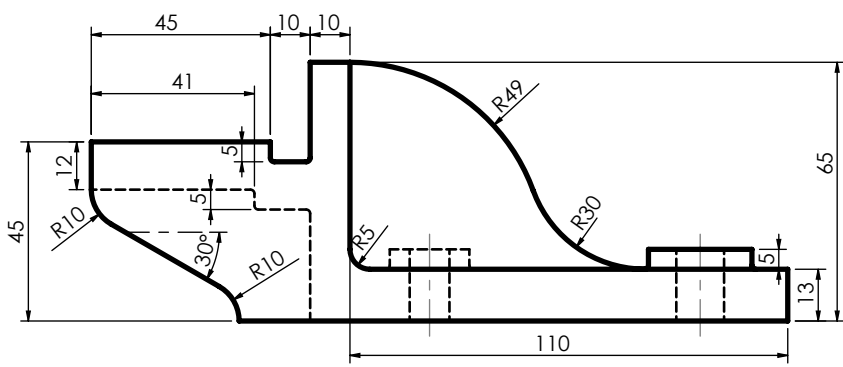


(12)

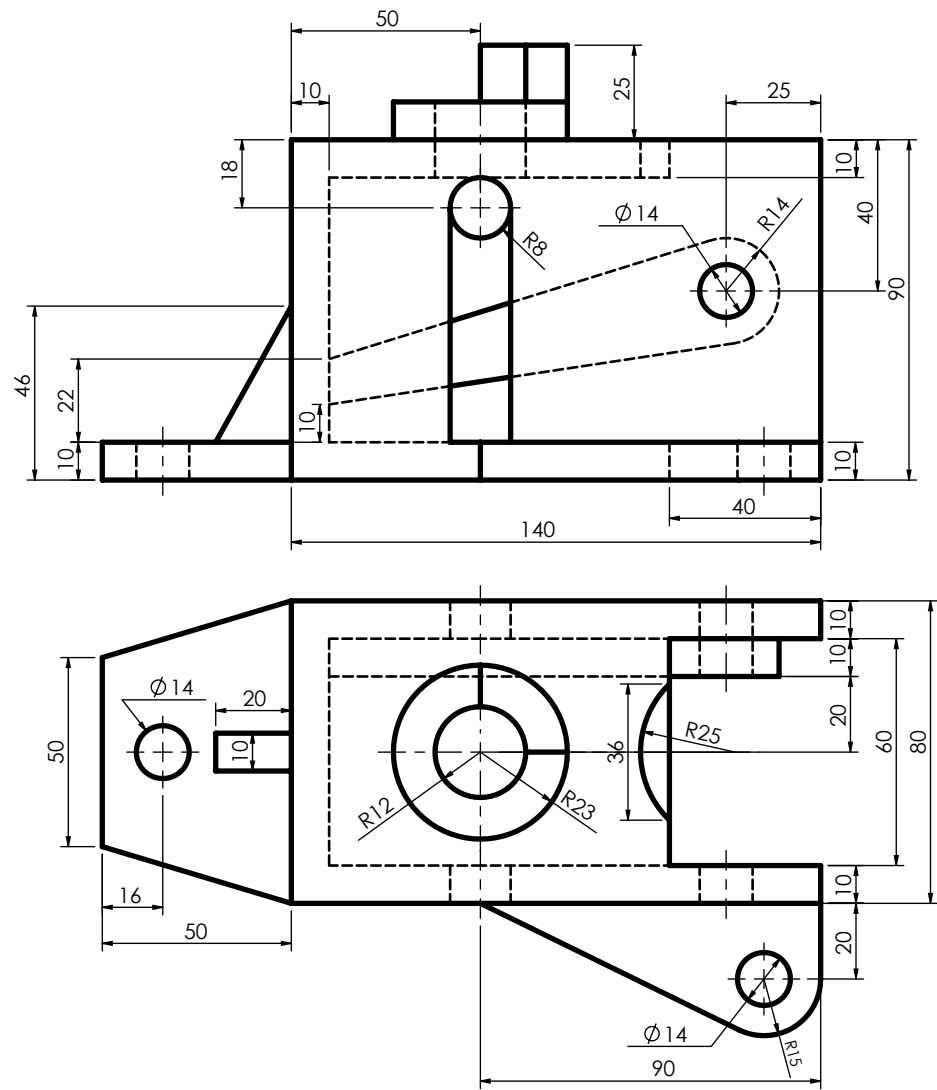
- Level 3



(13)



(14)



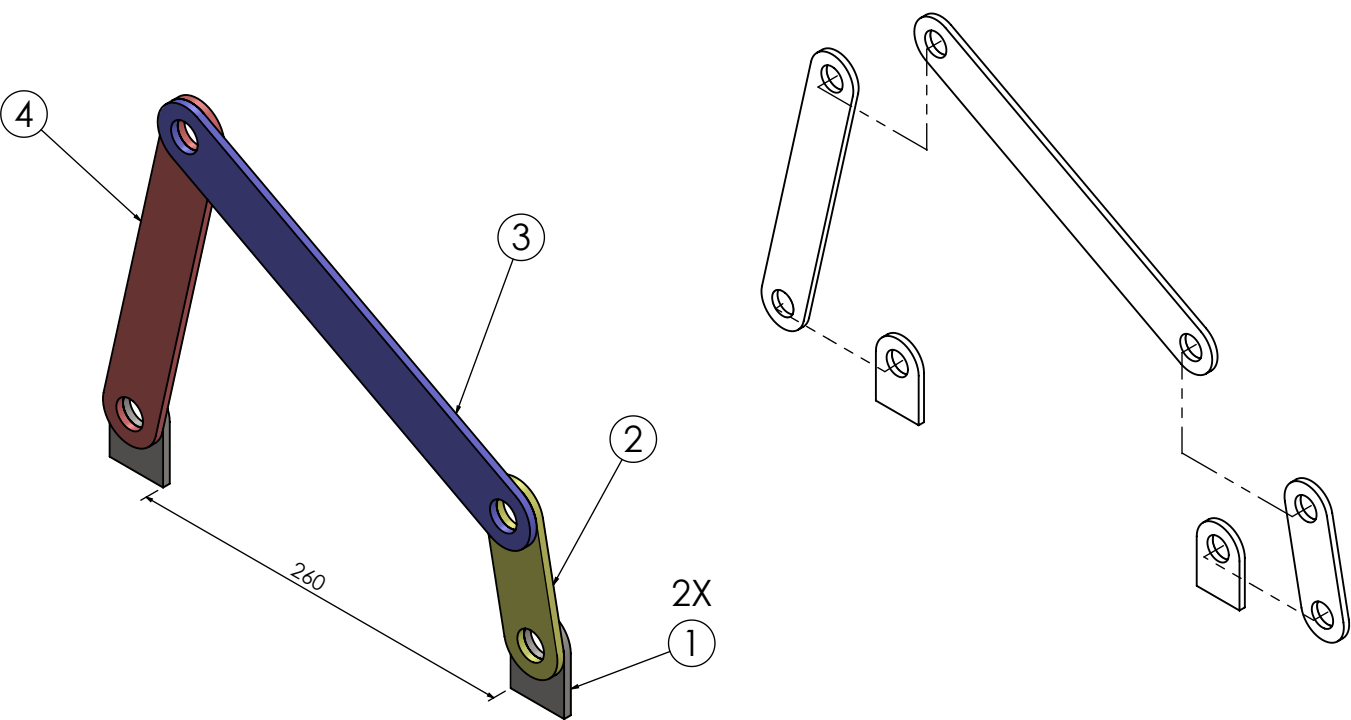
(15)

Sketch Entities:	
Sketch Tools :	
Feature :	<i>Toolbox .</i>

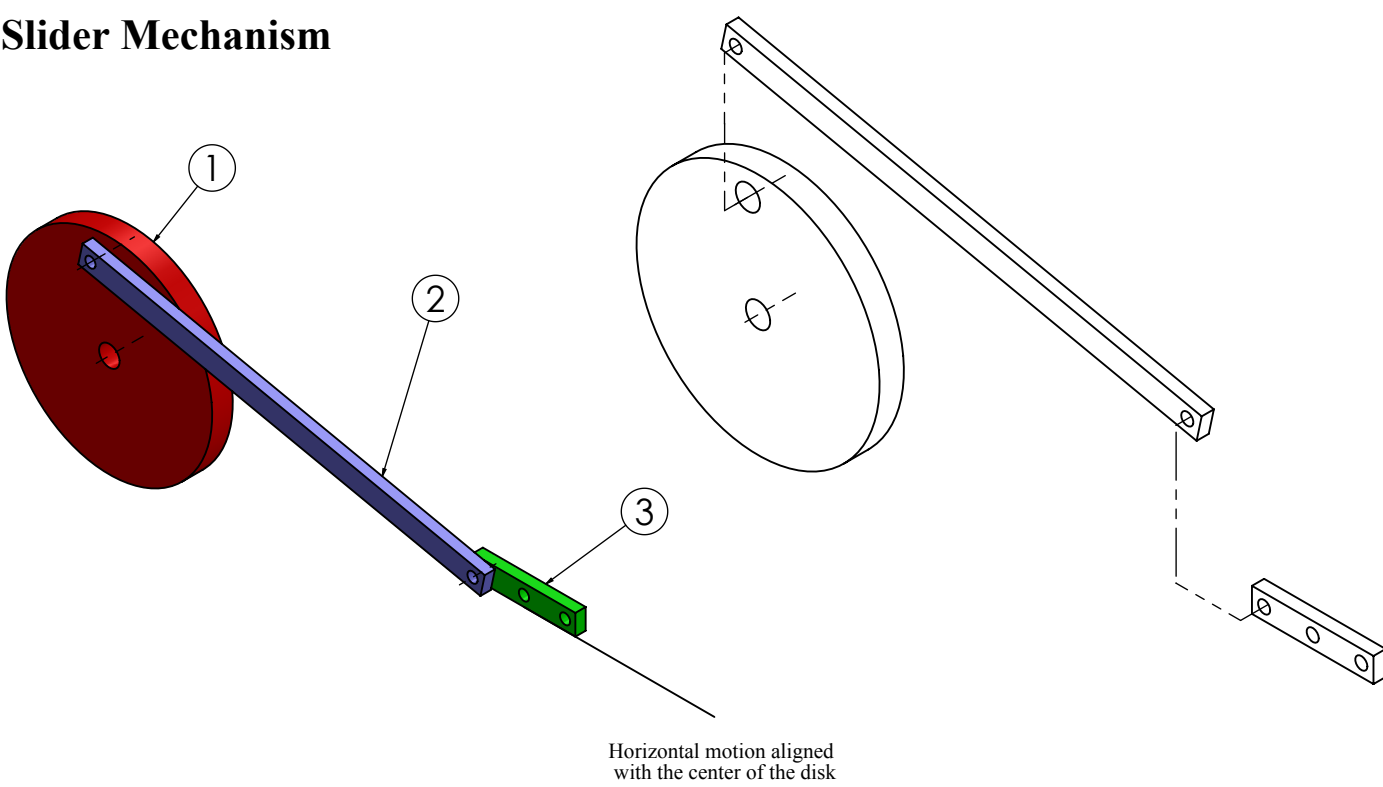
Problem: Using parts in the figure make the assembly as shown. any missing parts should be obtained from the toolbox or modeled from scratch.

CLASSWORK

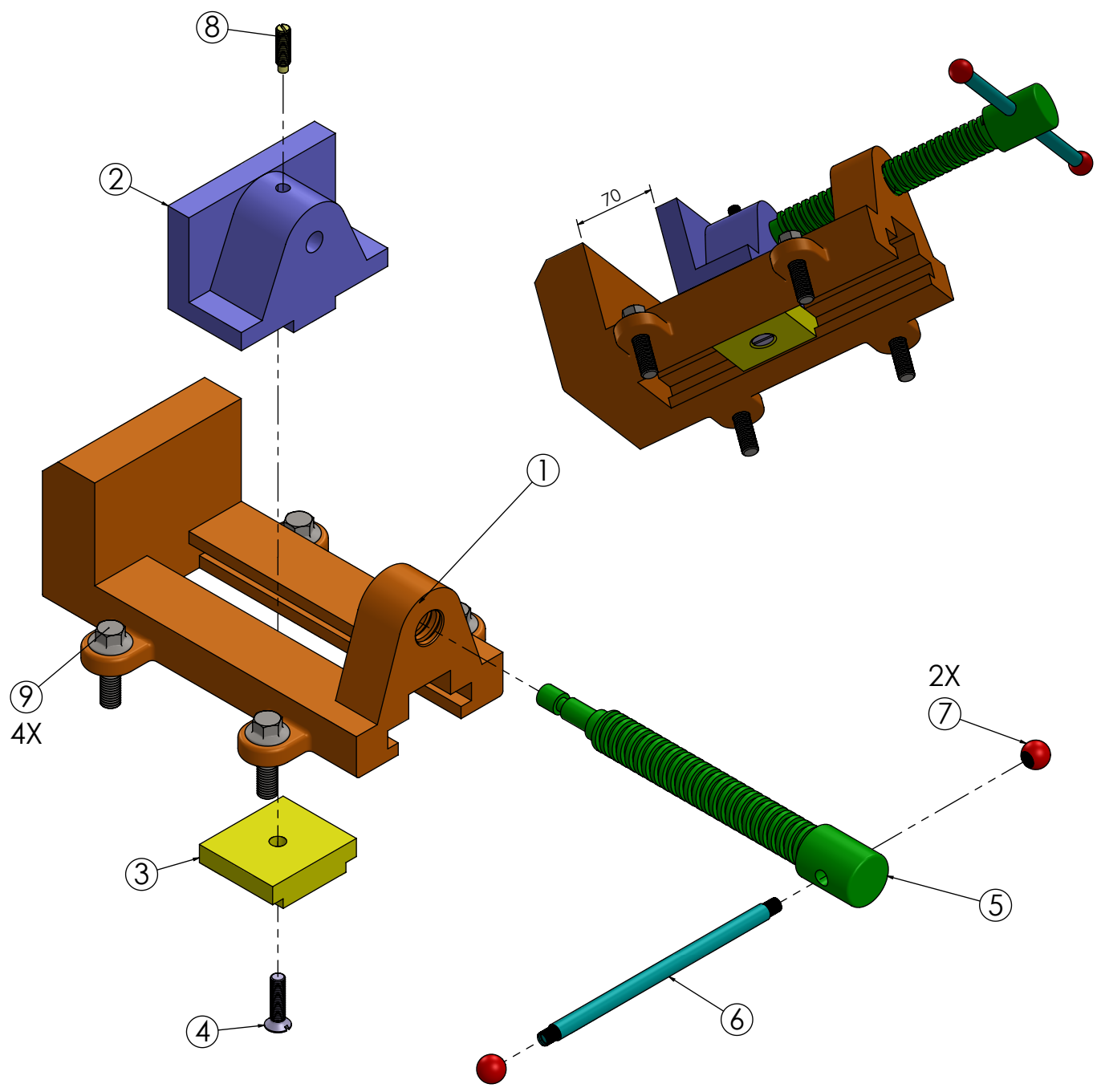
Q1- Four Bar links



Q2- Slider Mechanism



Q3- Machine Vice

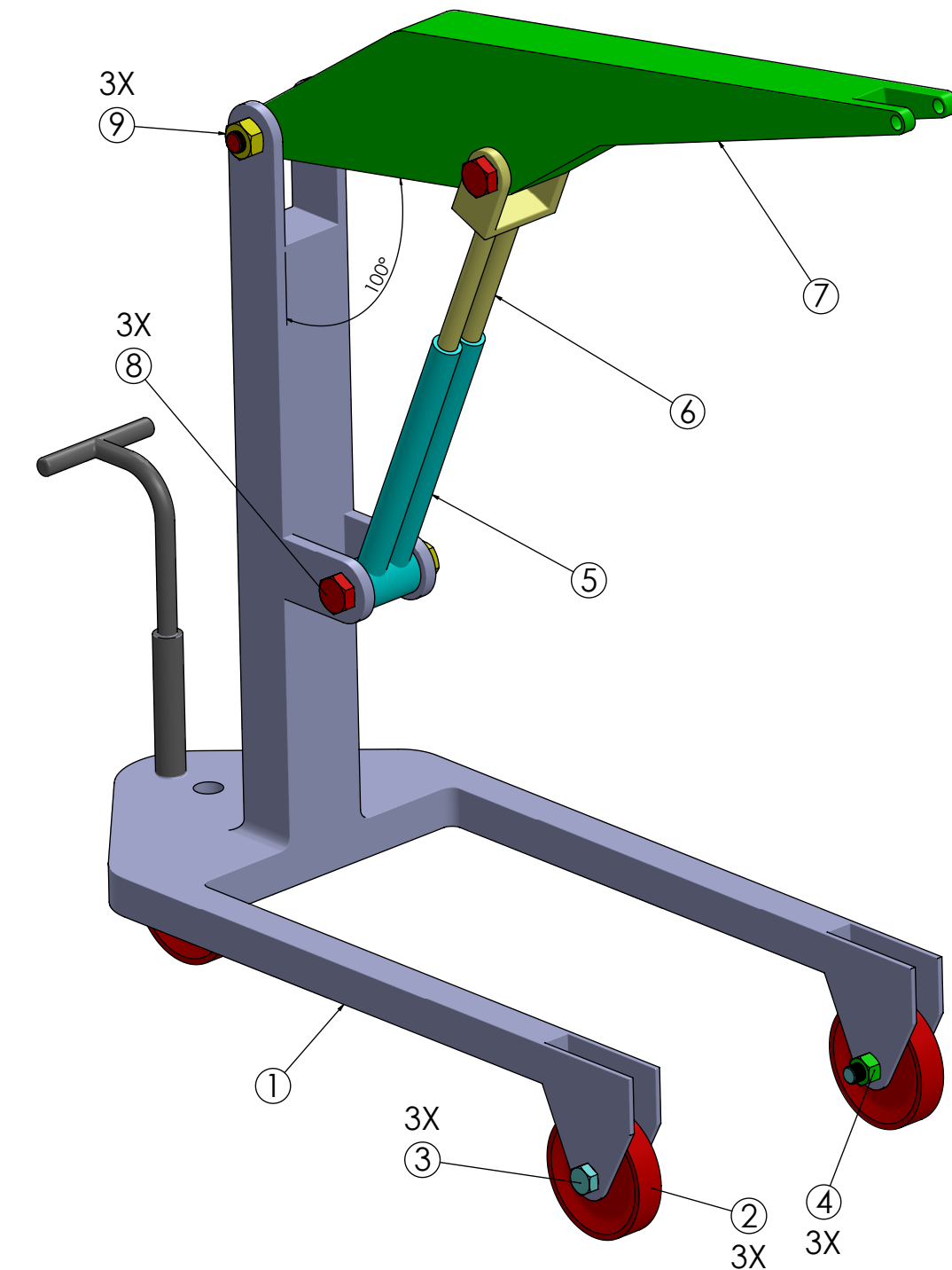


Part 4 : ISO 2009 - M10 x 40 --- 40S
(Slotted CTSK Flat Head - DIN EN ISO 2009)

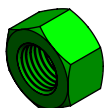
Part 8: ISO 7435 - M10 x 35-S
(Slotted Set Screw Dog Point - DIN EN 27435)

Part 9 : DIN 6921 - M14 x 50 x 50-S
(Hex Flange Bolt - DIN 6921)

Q4-Engine Crane

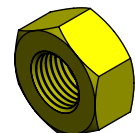
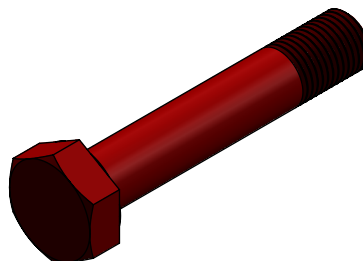


Part 3 : ISO 4016 - M30 x 120 x 66-WN
(Hex Bolt Grade C - DIN EN 24016)



Part 4: Hexagon Nut ISO 4034 - M30 - S
(Hex Nut Grade C - DIN EN 24034)

Part 8 : DIN 6914 - M36 x 200 x 50-S
(High-strength Hex Bolt - DIN 6914)

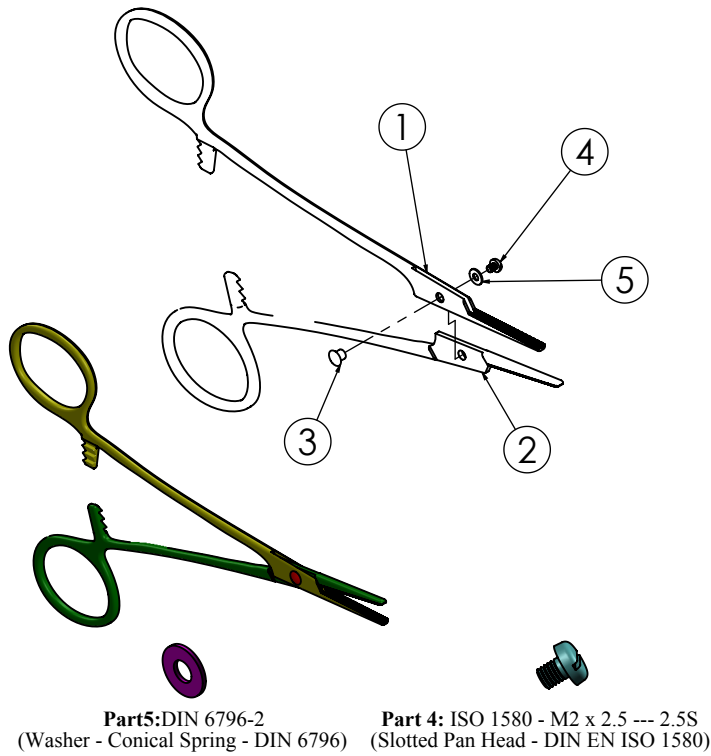


Part 9 : Hexagon Nut DIN 6915 - M36 - S
(Hex Nut High Strength - DIN 6915)

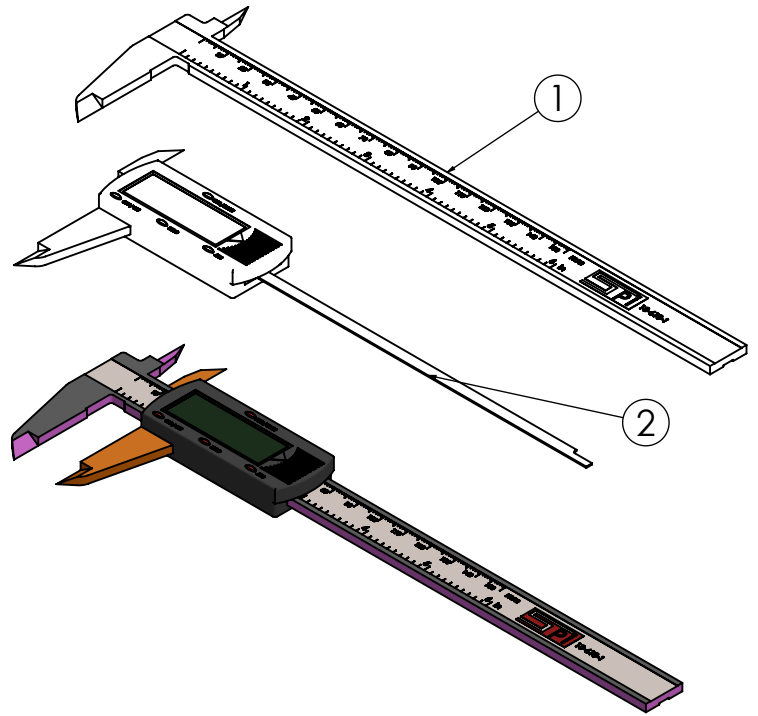
HOMEWORK

- Level 1

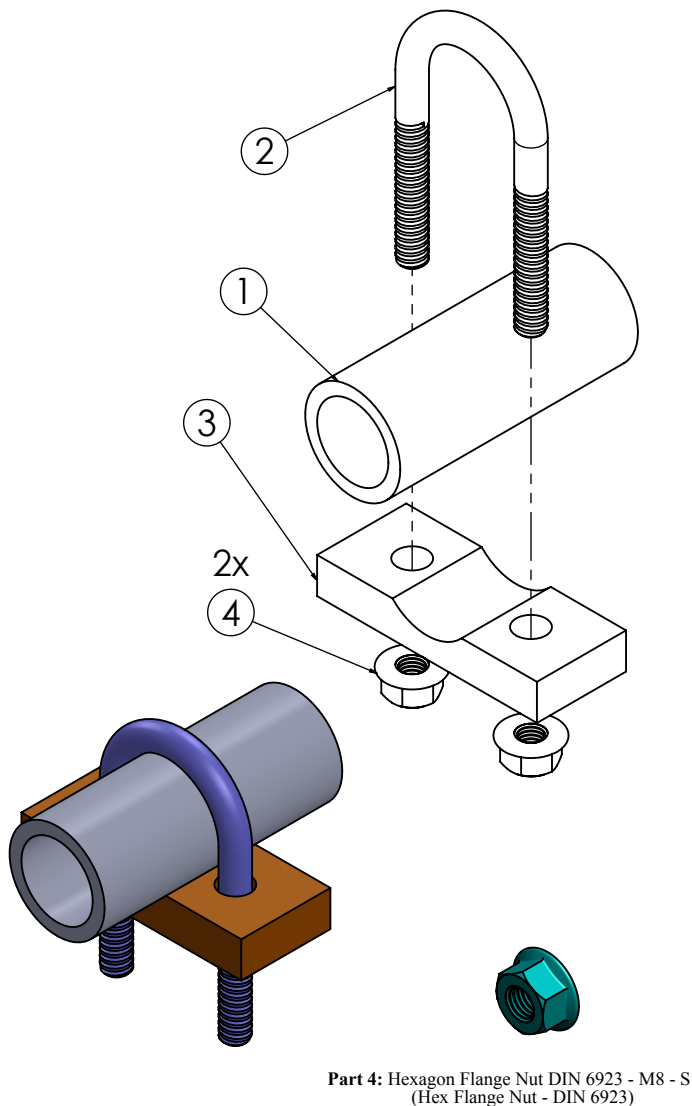
Q5- Scissor



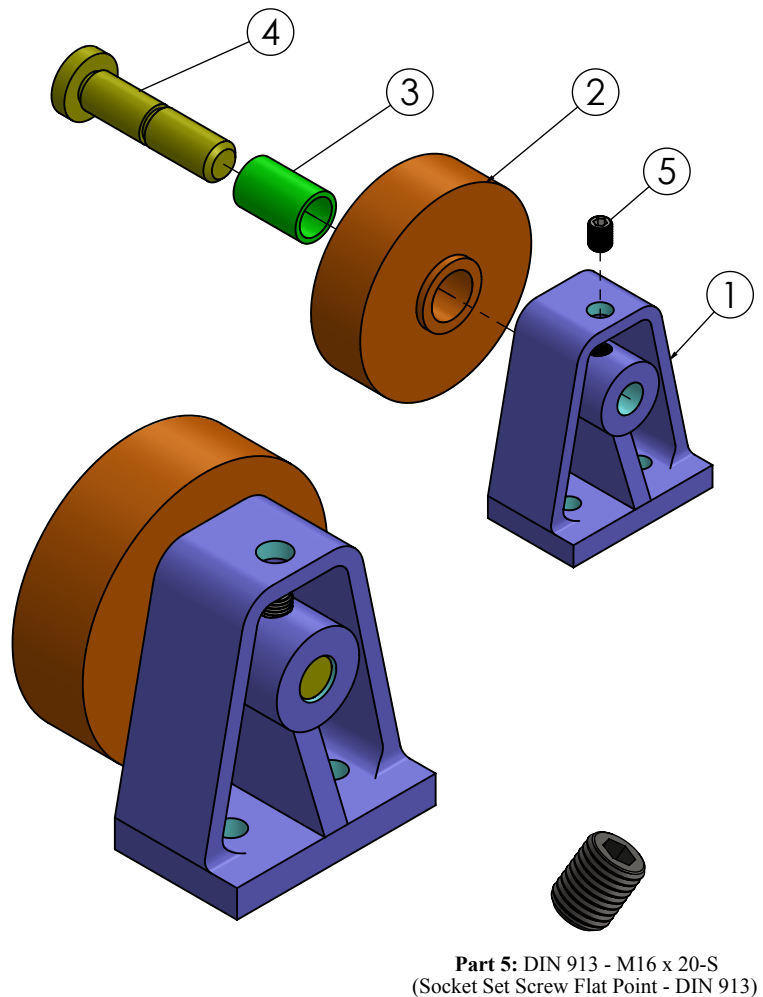
Q6- Digital Caliper



Q7- U-Bolt-Strap

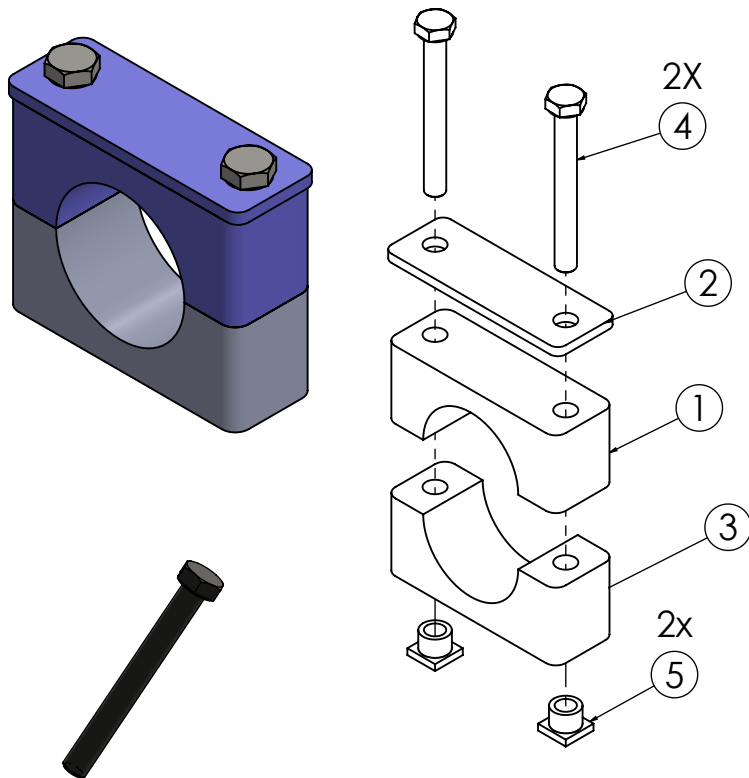


Q8- Roller-Bracket



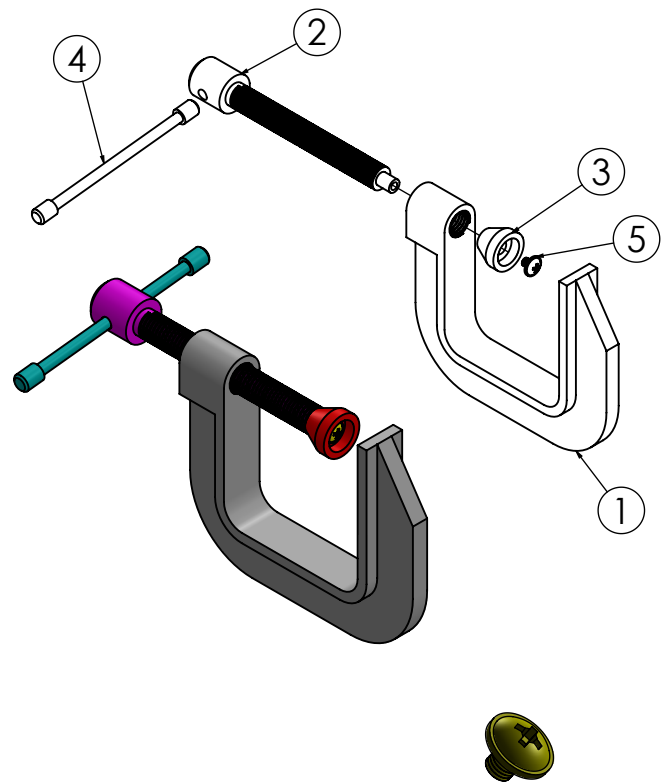
- Level 2

Q9- Pipe-Clamp



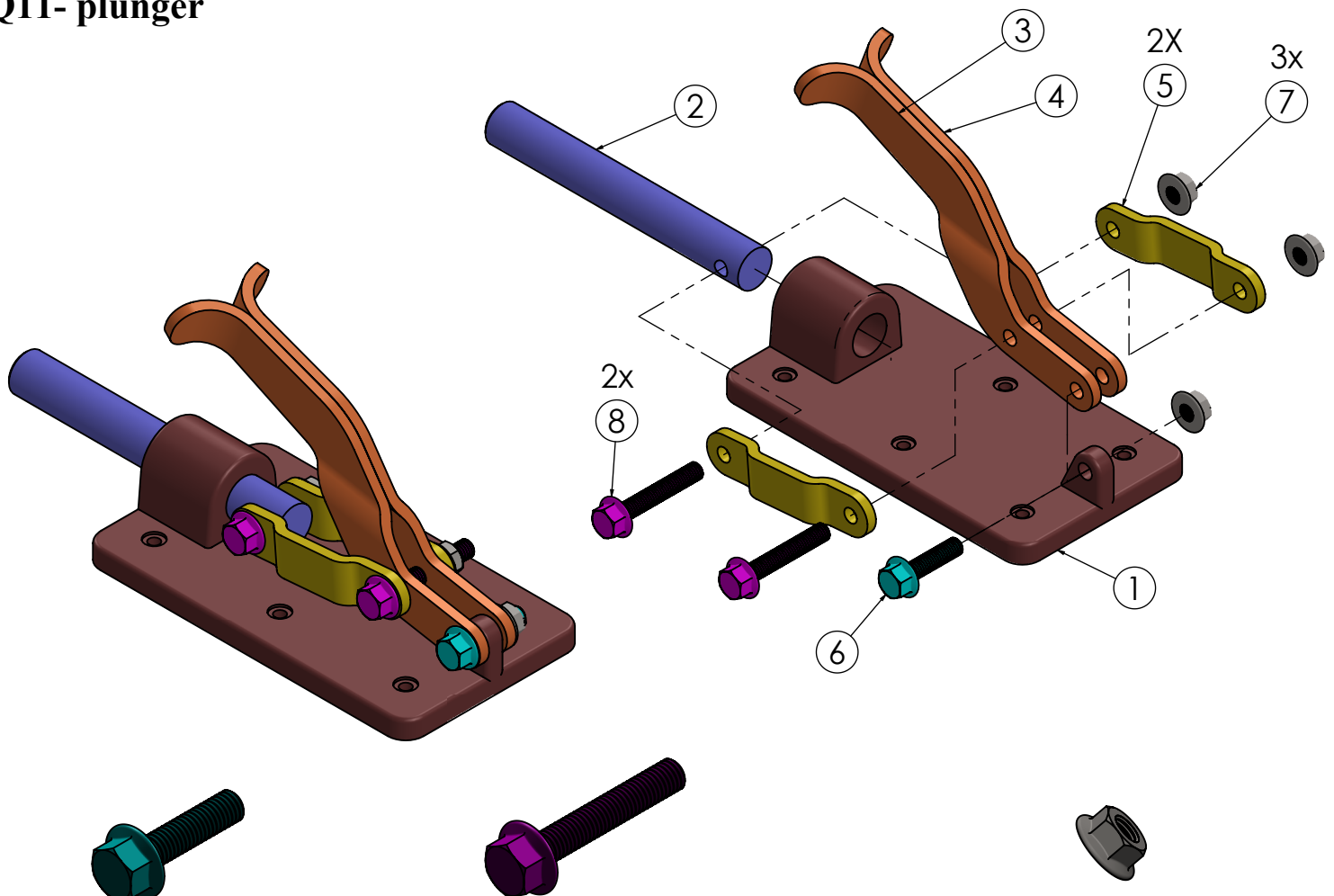
Part 4: ISO 4014 - M8 x 70 x 22-C
(Hex Screw Grade AB - DIN EN 24014)

Q10- C-Clamp



Part 5: DIN 967 - M4 x 5 - Z --- 3.6S
(Pan Head Cross Recess - DIN 967)

Q11- plunger

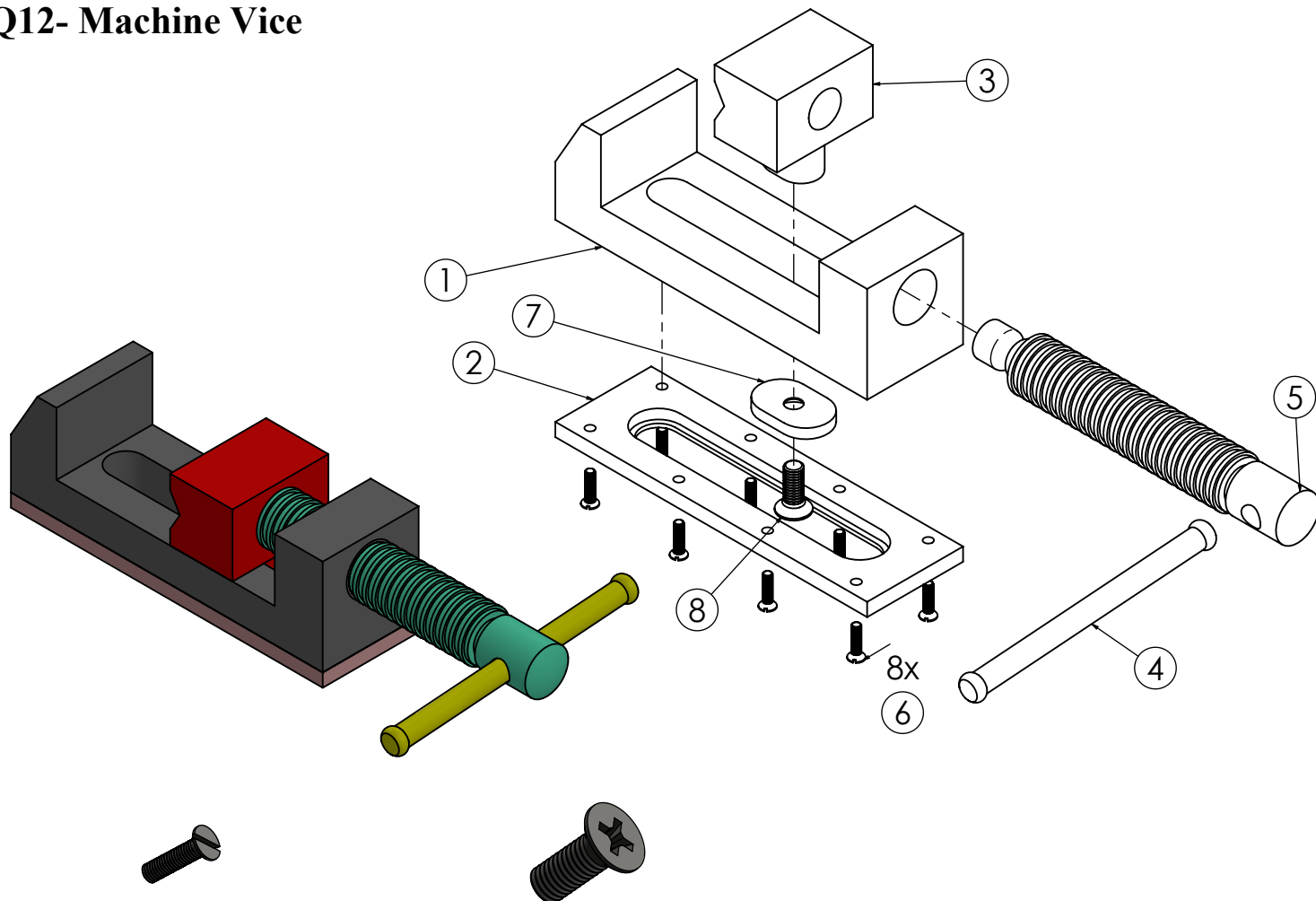


Part 6: DIN 6921 - M5 x 20 x 20-S
(Hex Flange Bolt - DIN 6921)

Part 8: DIN 6921 - M5 x 30 x 30-S
(Hex Flange Bolt - DIN 6921)

Part 7: Hexagon Flange Nut DIN 6923 - M5 - S
(Hex Flange Nut - DIN 6923)

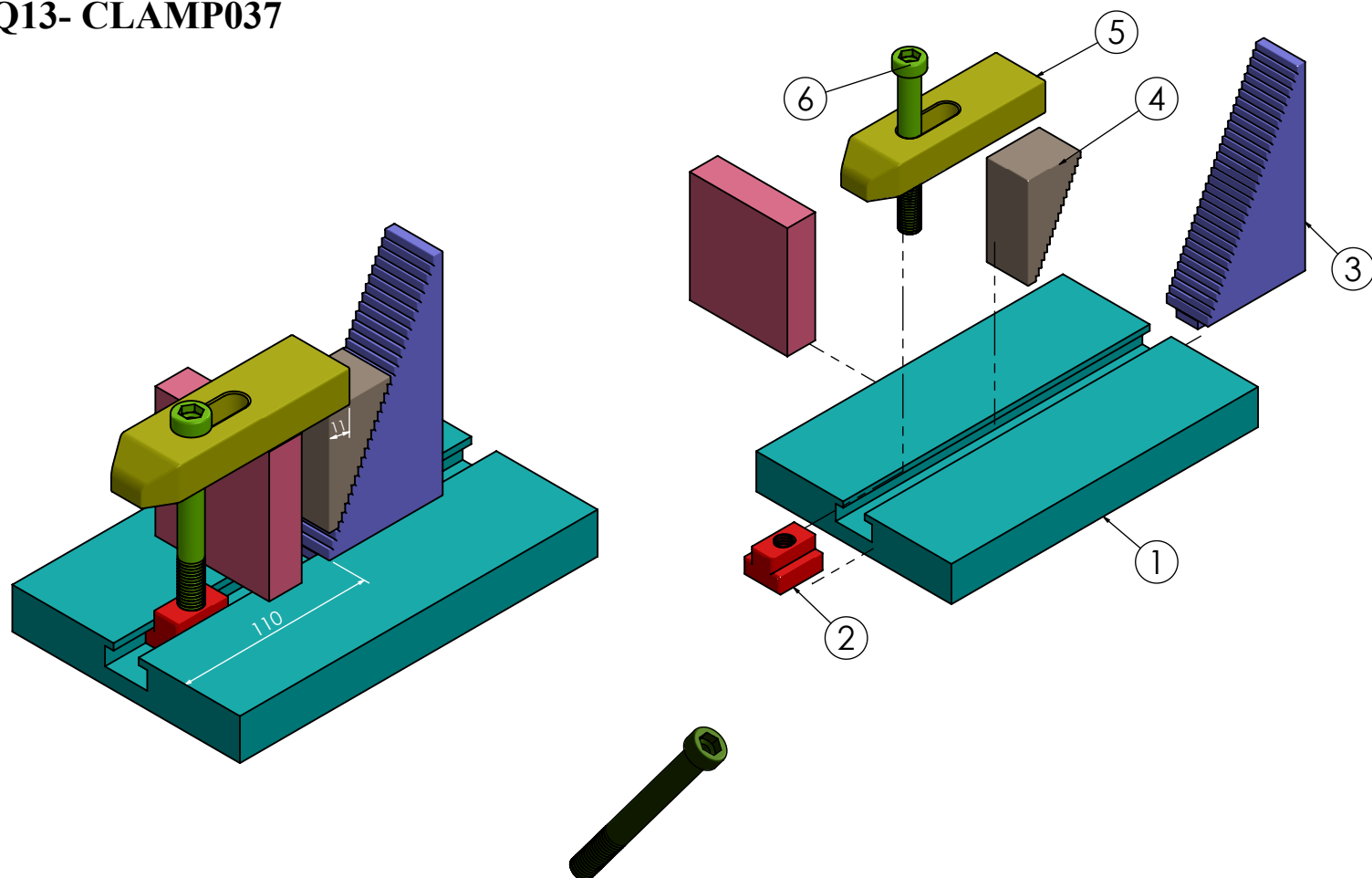
Q12- Machine Vice



Part 6: ISO 2009 - M3 x 12 --- 12S
(Slotted CTSK Flat Head - DIN EN ISO 2009)

Part 8: ISO 7046-1 - M6 x 16 - Z --- 16S
(CTSK Flat - DIN EN ISO 7046-1)

Q13- CLAMP037



Part 6: DIN 6912 - M12 x 100 --- 30S
(Hex Socket Head - DIN 6912)

Q14- Connecting Rod

Diagram showing the assembly of a connecting rod. The assembly includes a blue ball joint (4) at the top, a red rod (5), and a brown bracket (1) at the bottom. The bracket is secured with a hex nut (3) and a hex bolt (2). A small white cap (6) is shown near the top joint.

Part 3: Hexagon Nut ISO 8673 - M42 x 3 - D - N
(Hex Nut Style 1 Fine - DIN EN 28673)

Part 2: ISO 4016 - M42 x 200 x 96-NS
(Hex Bolt Grade C - DIN EN 24016)

Q15- Hook-Gancho

Diagram showing the assembly of a hook. The assembly includes a red U-shaped bracket (1) at the top, a brown hook (2) at the bottom, and a hex flange nut (4) connecting them. A small metal pin (3) is also shown.

Part 4: Hexagon Flange Nut DIN 6923 - M20 - S
(Hex Flange Nut - DIN 6923)

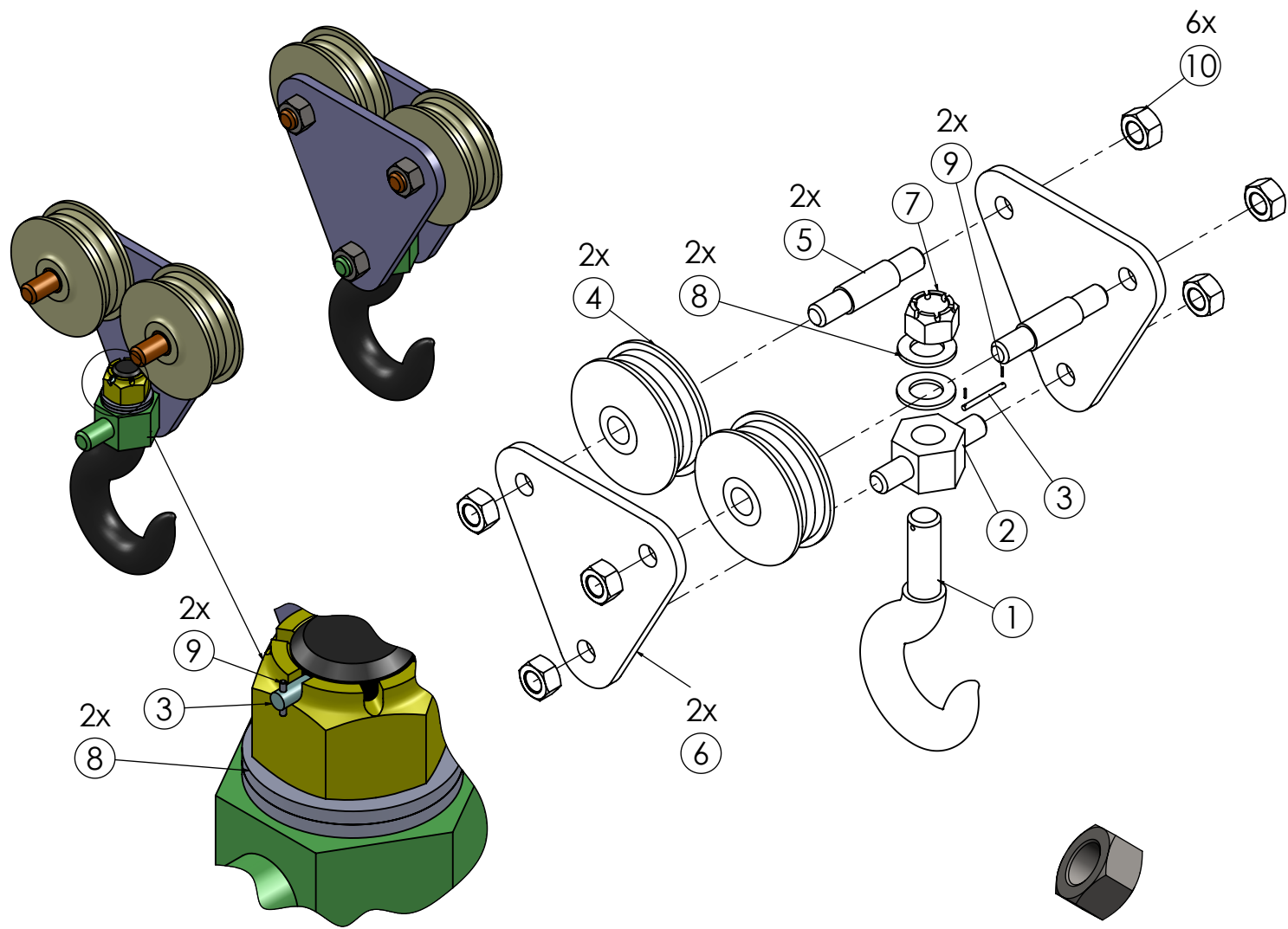
Q16- Valve-Cam

Diagram showing the assembly of a valve-cam. The assembly includes a blue bracket (1) at the top, a green rod (2) at the bottom, and a red cam (3) in the middle. The cam is secured with a hex nut (4) and a hex bolt (5). A small metal pin (6) is also shown.

Q17- Plunger-Hook

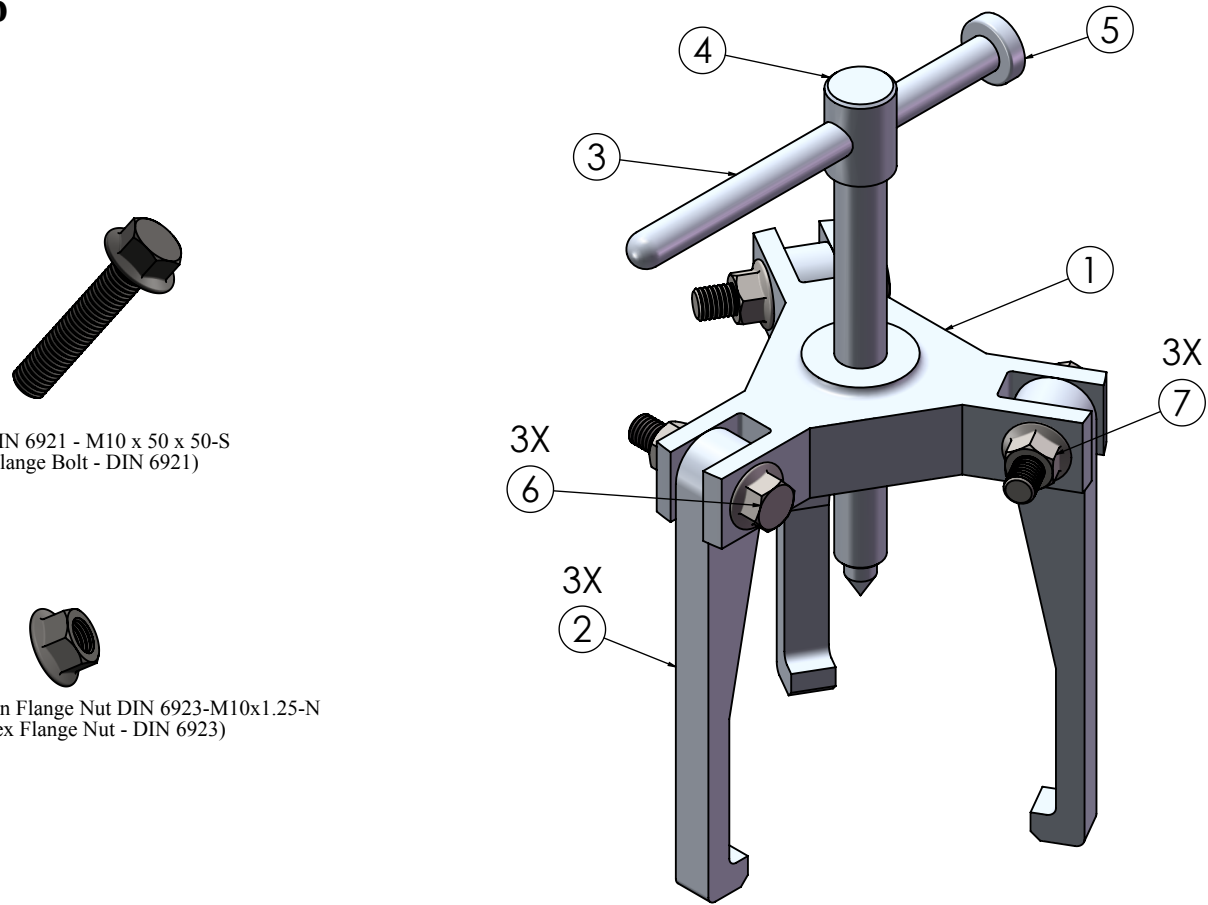
Diagram showing the assembly of a plunger-hook. The assembly includes a blue bracket (1) at the top, a green rod (2) at the bottom, and a red cam (3) in the middle. The cam is secured with a hex nut (4) and a hex bolt (5). A small metal pin (6) is also shown.

Q18- Crane Hook



Part 10 :Hexagon Nut ISO 4034 - M56 - N
(Hex Nut Grade C - DIN EN 24034)

Q19- Clamp



Part 6: DIN 6921 - M10 x 50 x 50-S
(Hex Flange Bolt - DIN 6921)

Part 7: Hexagon Flange Nut DIN 6923-M10x1.25-N
(Hex Flange Nut - DIN 6923)

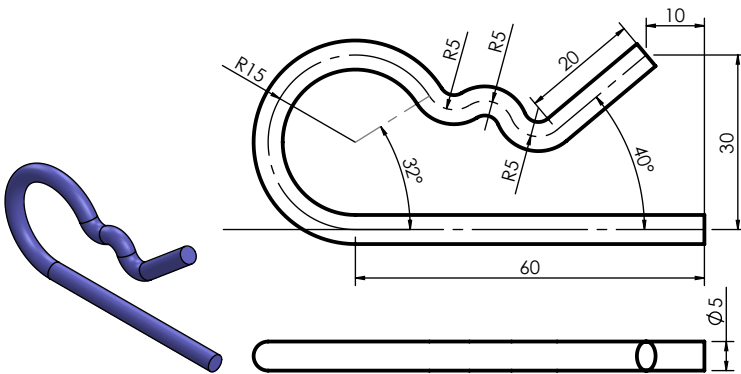
Sketch Entities:

Sketch Tools : 3D sketch, Helix

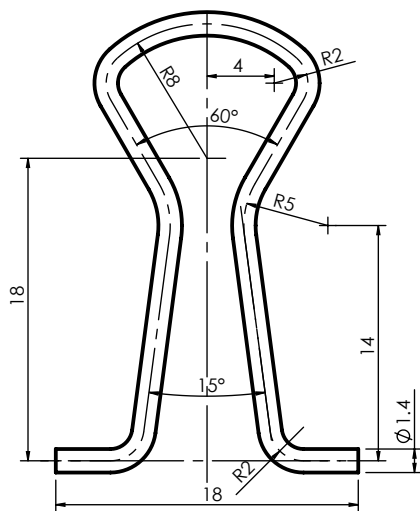
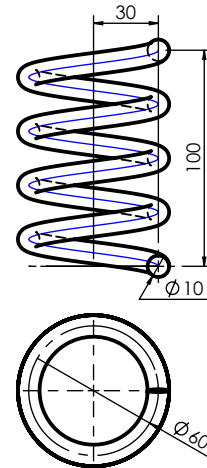
Feature : Sweep, Sweep Cut, Shell

Problem1: Create the following 3D model

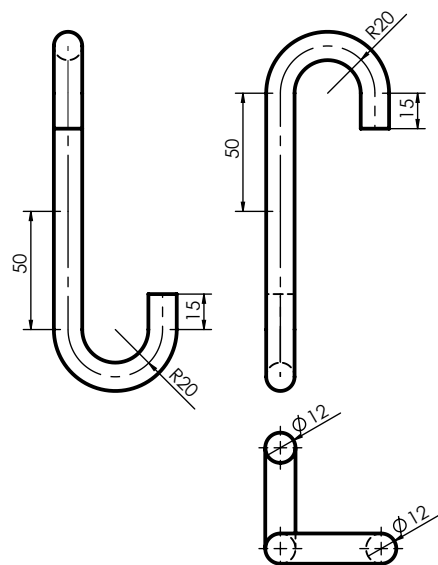
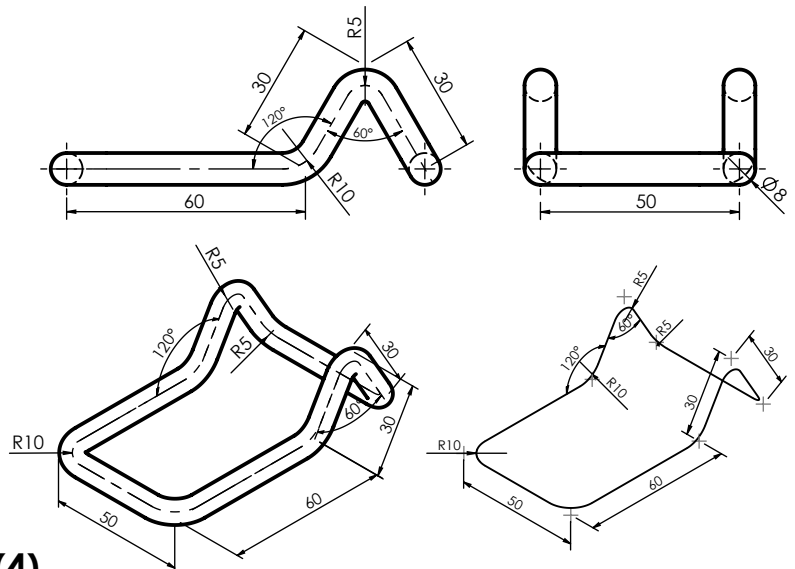
CLASSWORK



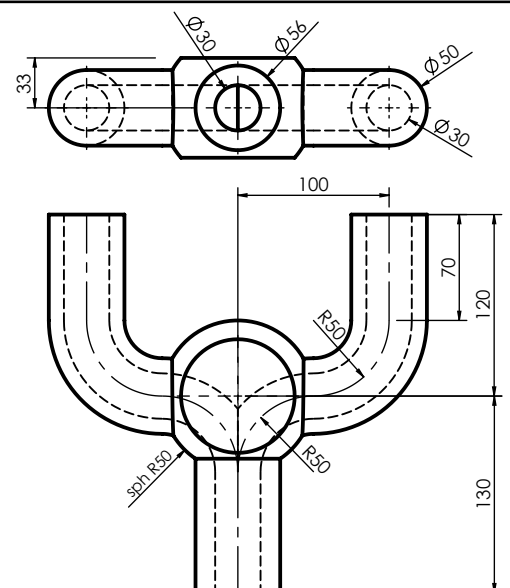
(1) (2)



(3) (4)

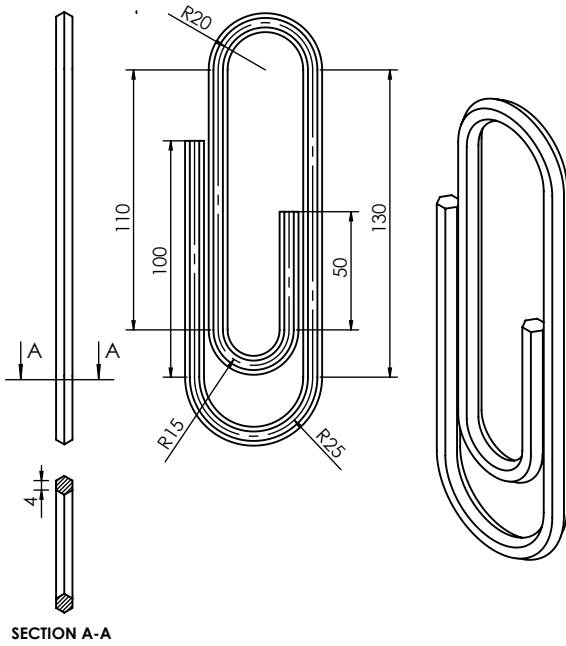


(5) (6)

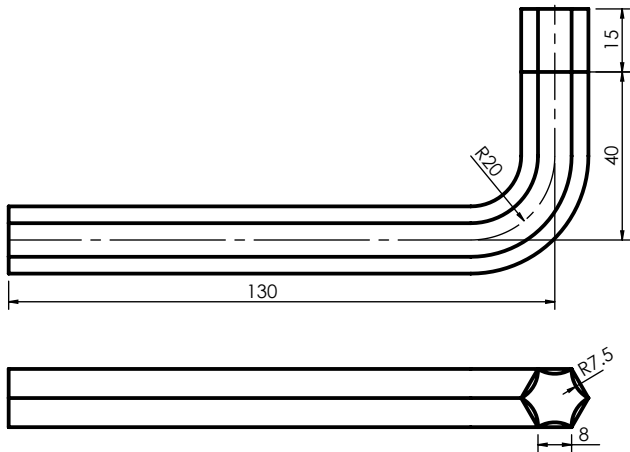
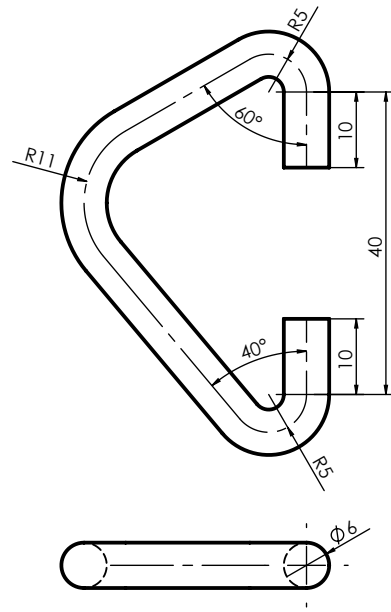


HOMEWORK

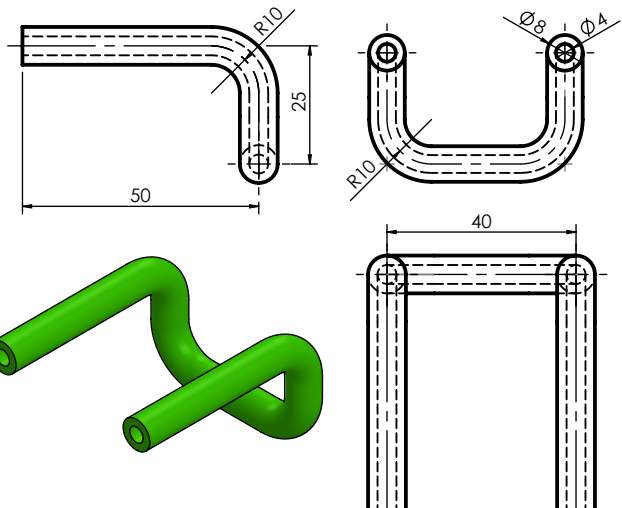
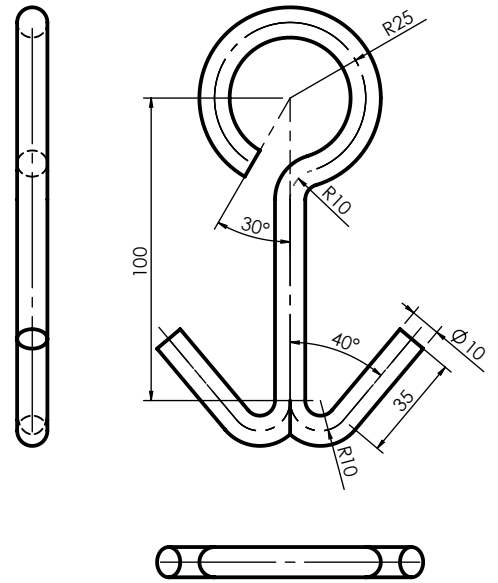
-Level 1



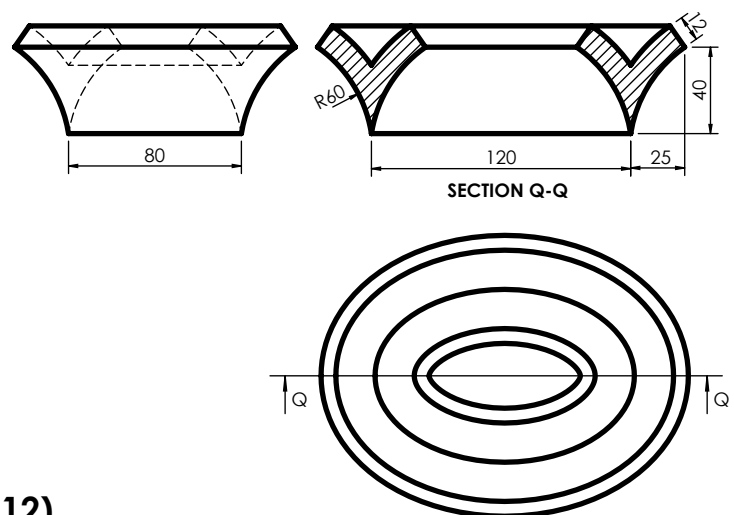
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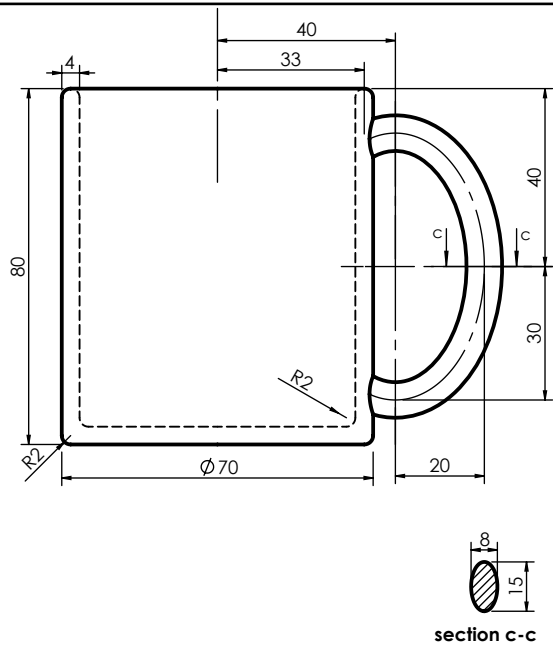
(9) (10)



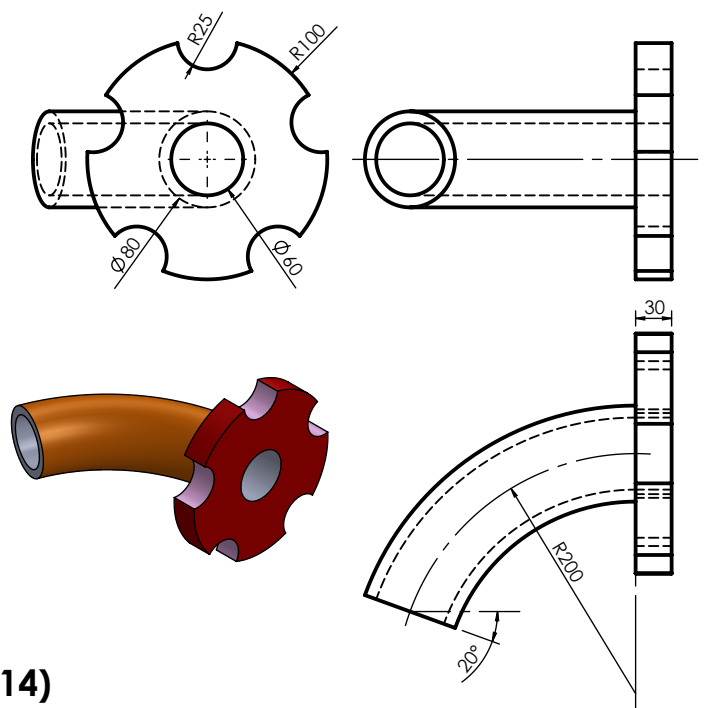
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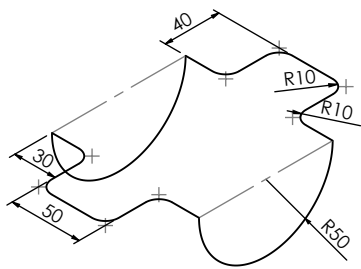
-Level 2



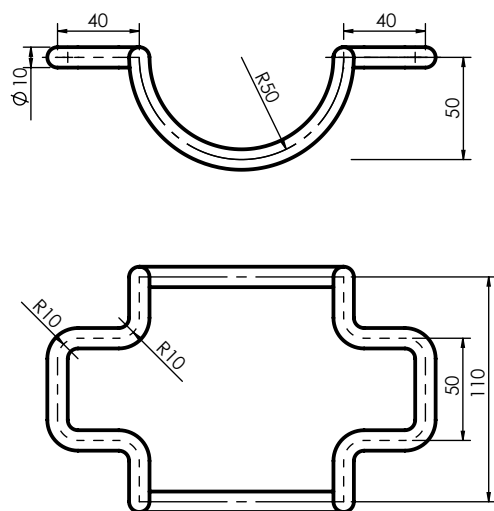
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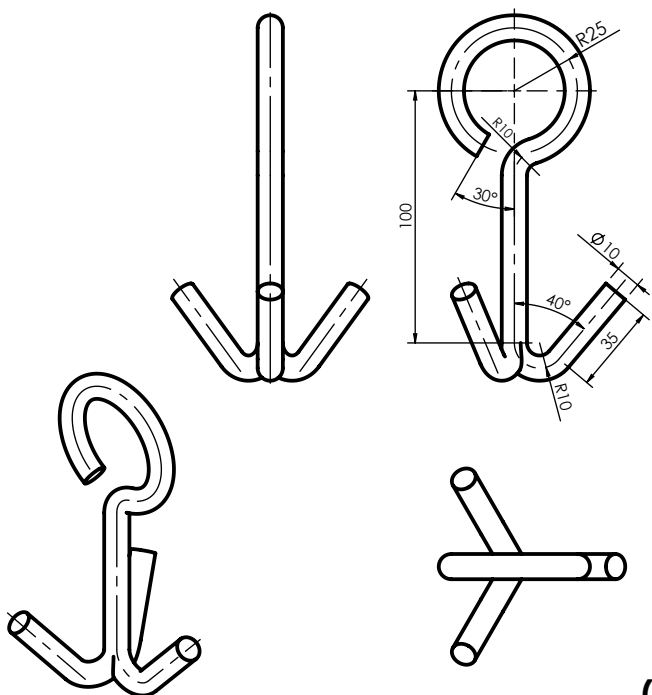
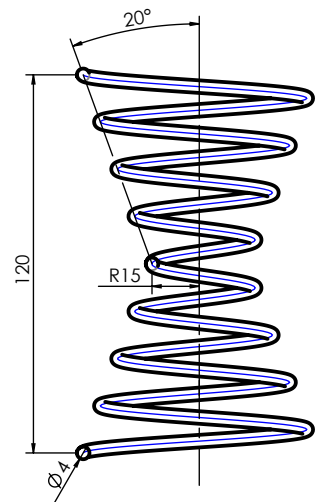
(14)



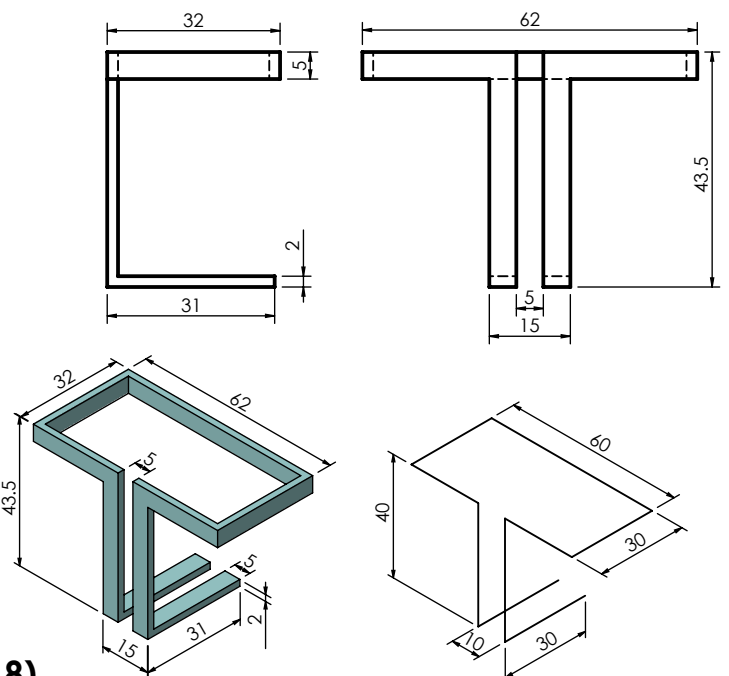
(15)



(16)

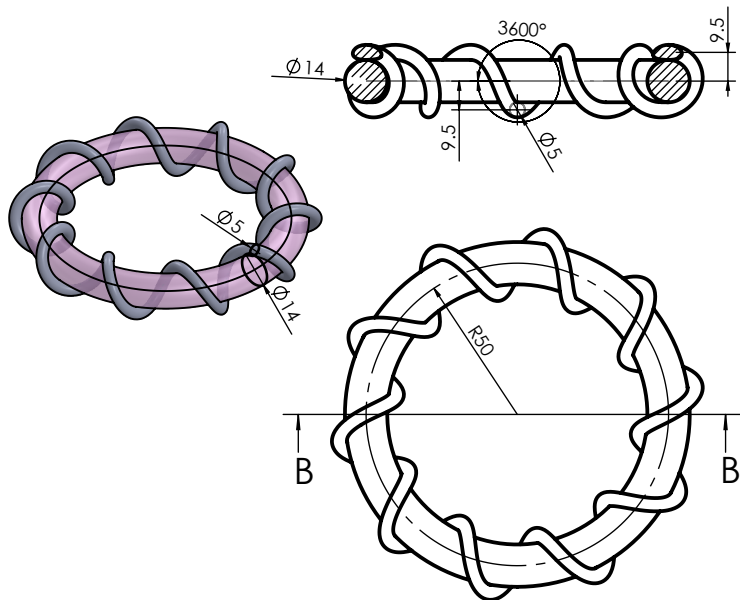


(17)

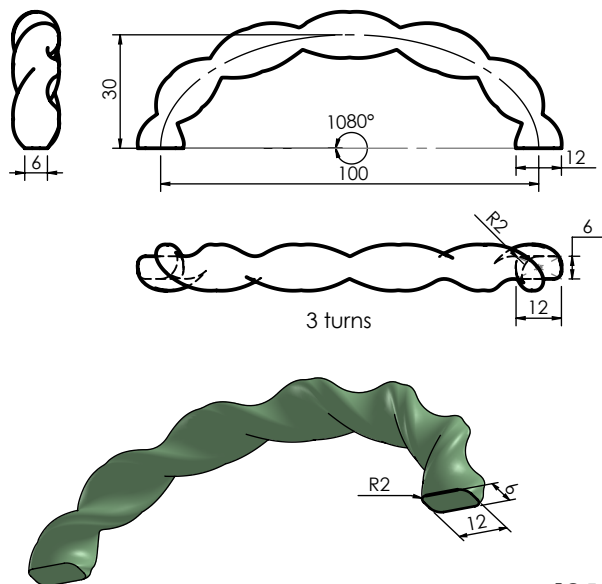
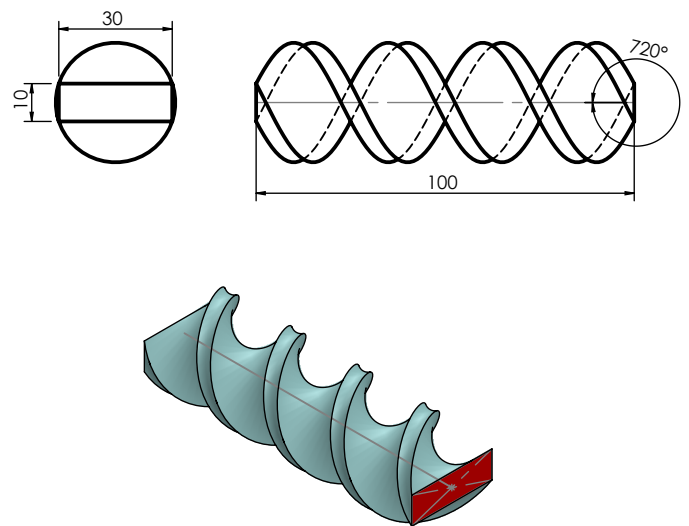


(18)

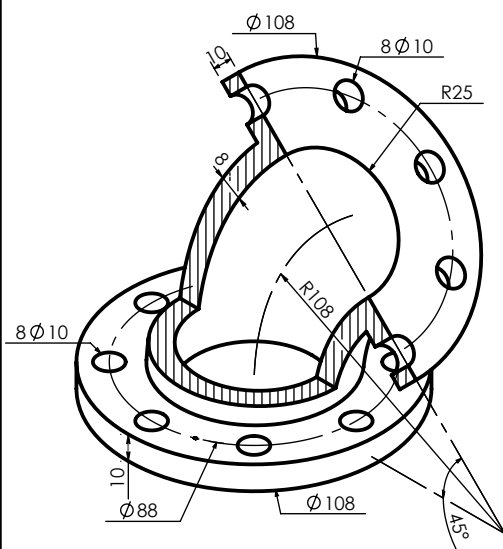
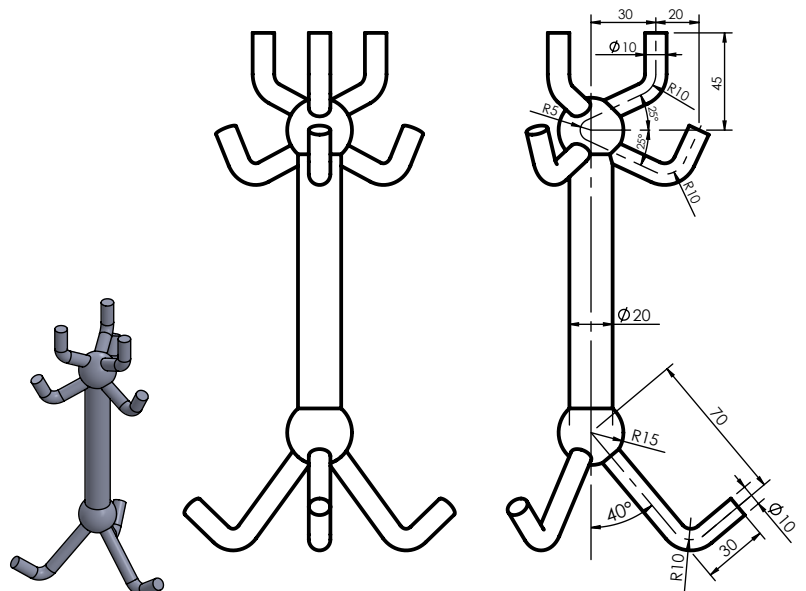
-Level 3



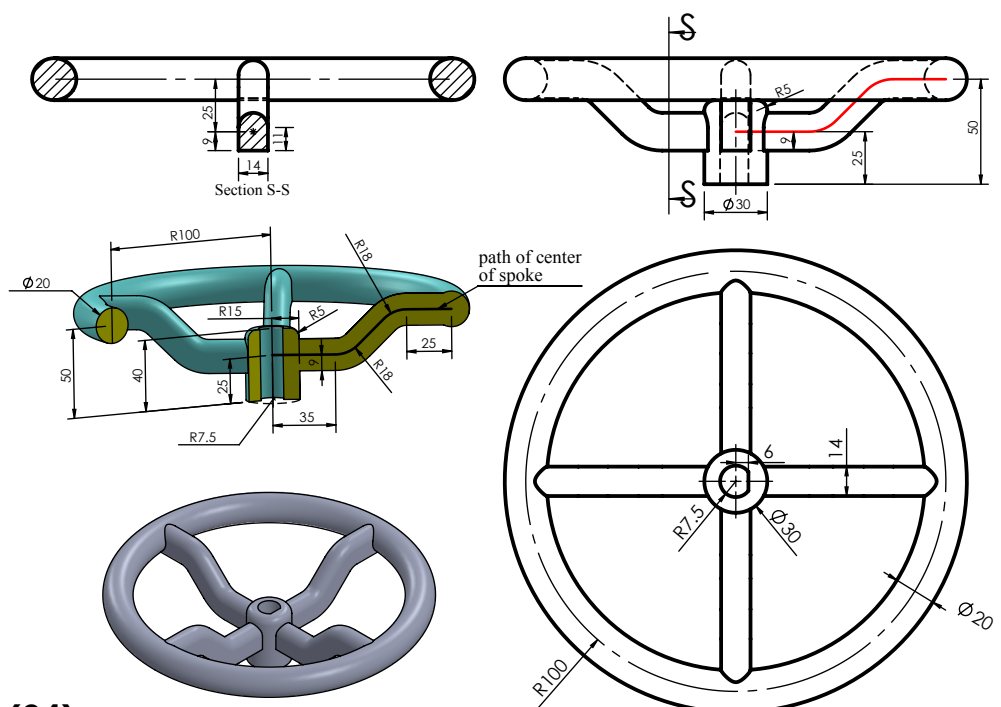
(19) (20)



(21) | (22)



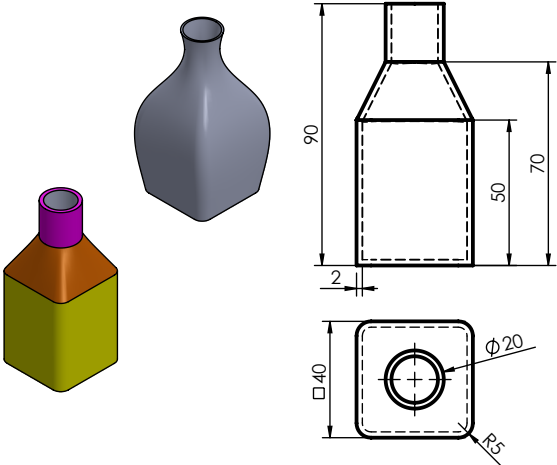
(23) | (24)



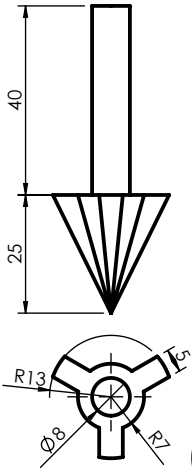
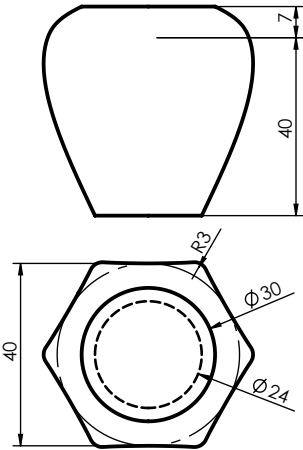
Sketch Entities:	
Sketch Tools :	
Feature :	<i>Loft, Loft Cut.</i>

Problem1: Create the following 3D model

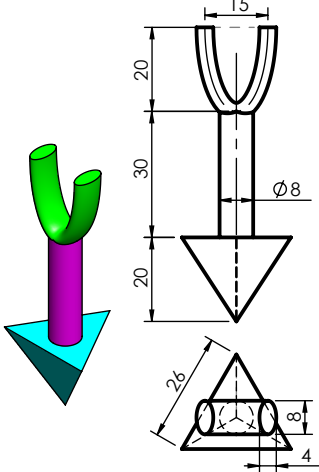
CLASSWORK



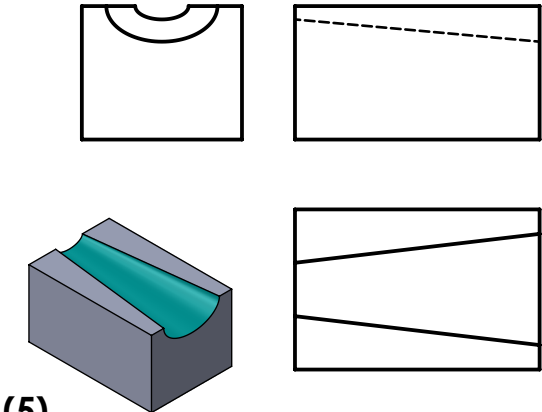
(1) (2)



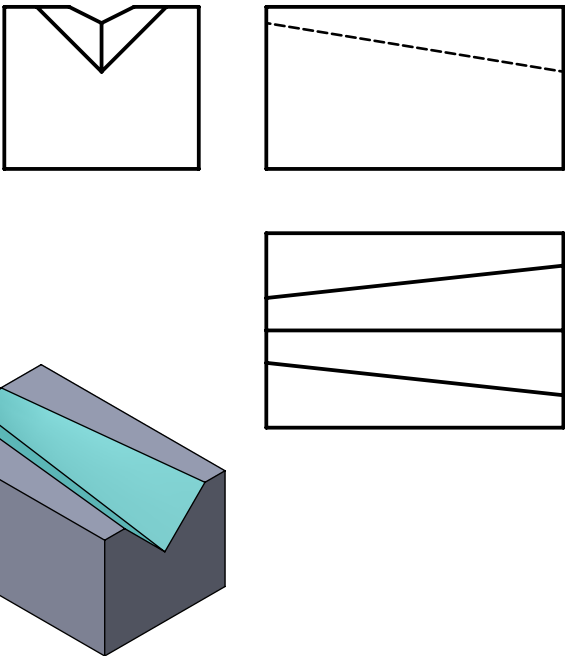
(3)



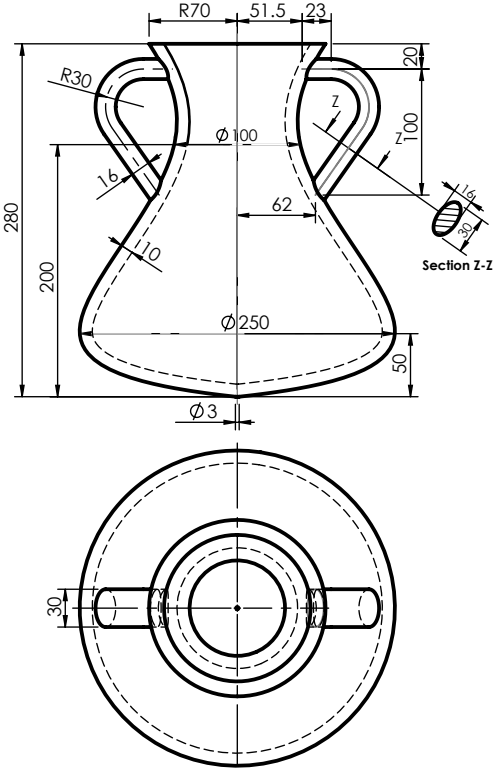
(4)



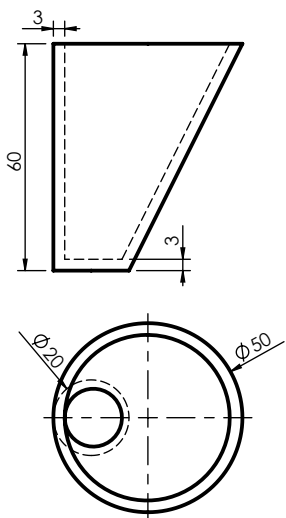
(5)



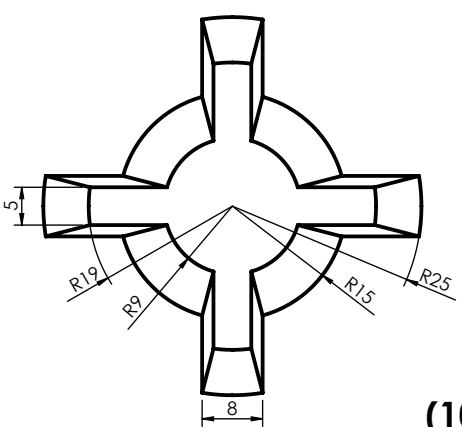
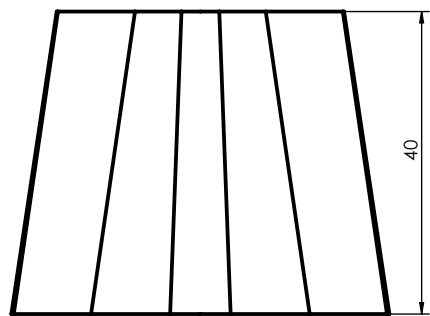
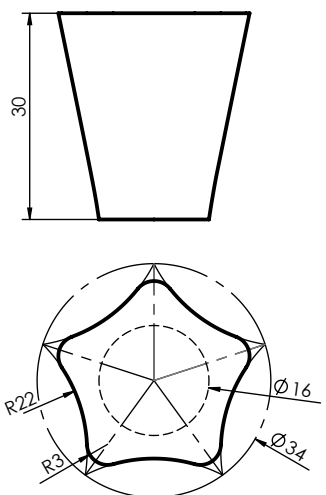
(6) (7)



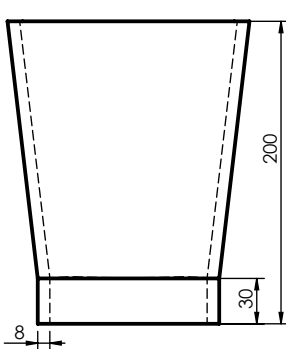
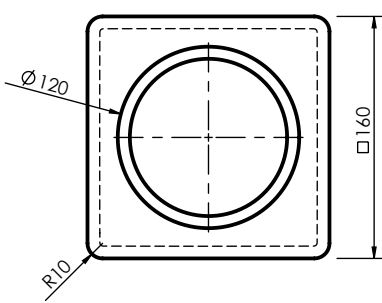
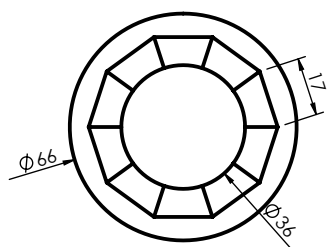
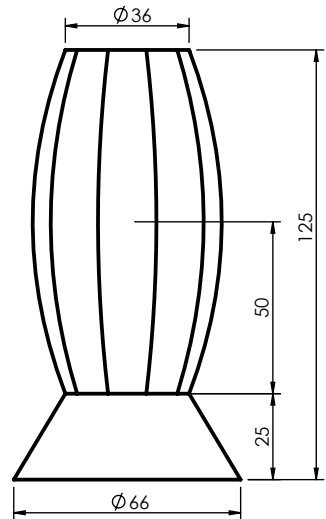
-Level 1



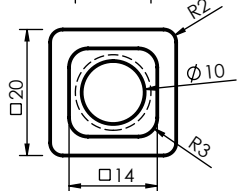
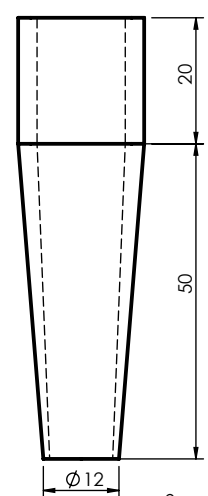
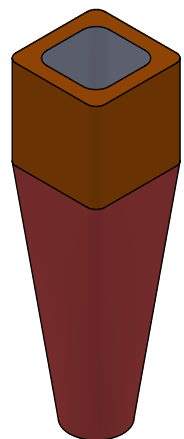
(8) (9)



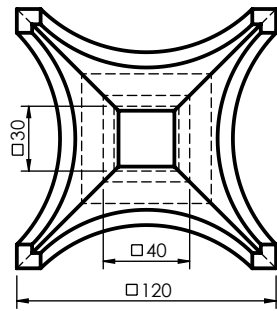
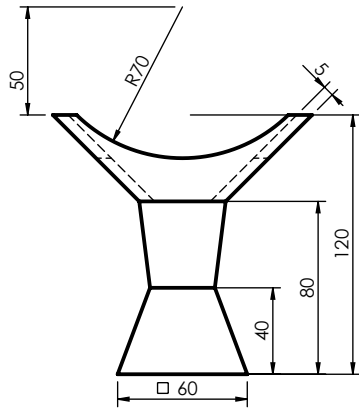
(10) (11)



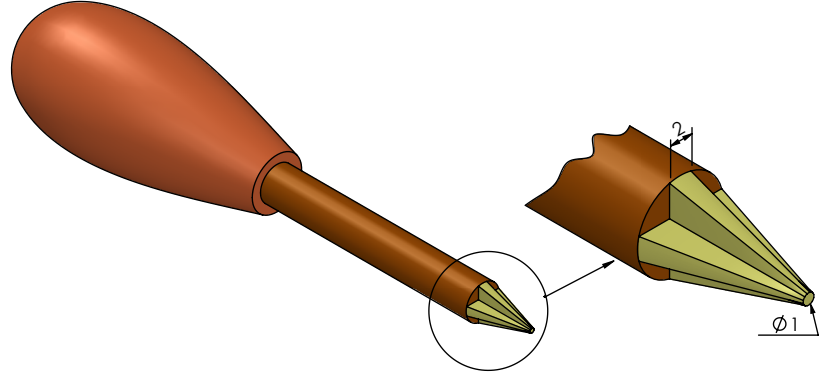
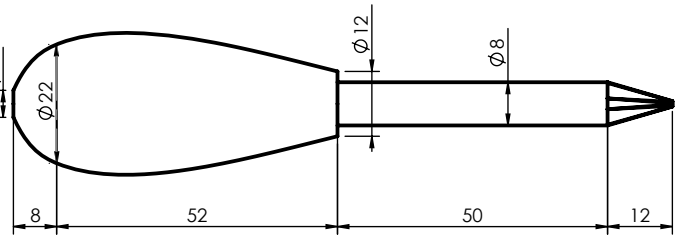
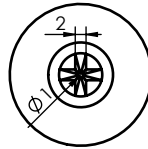
(12) (13)



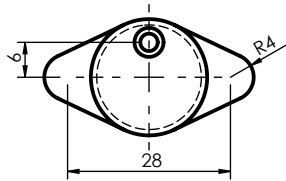
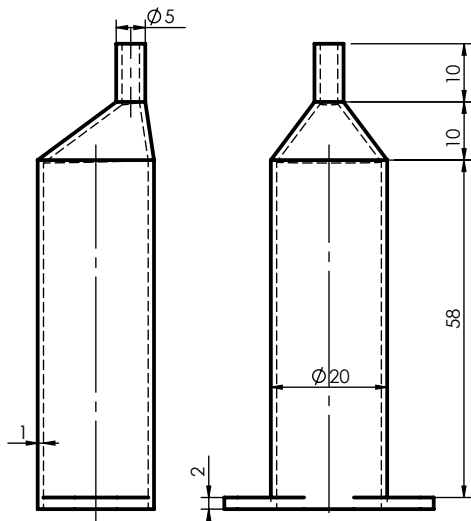
-Level 2



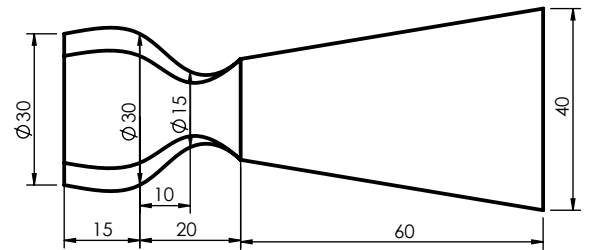
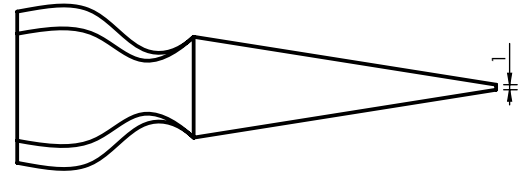
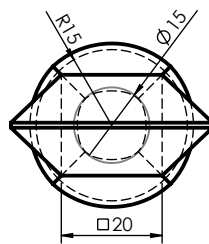
(14)



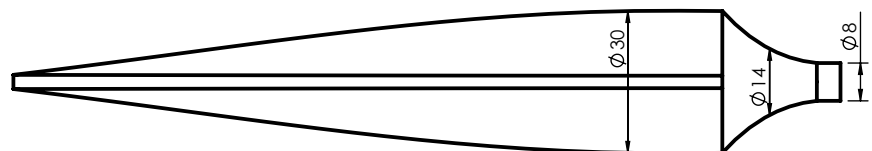
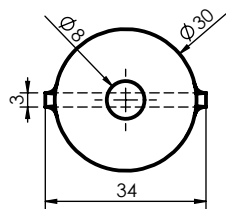
(15)



(16)

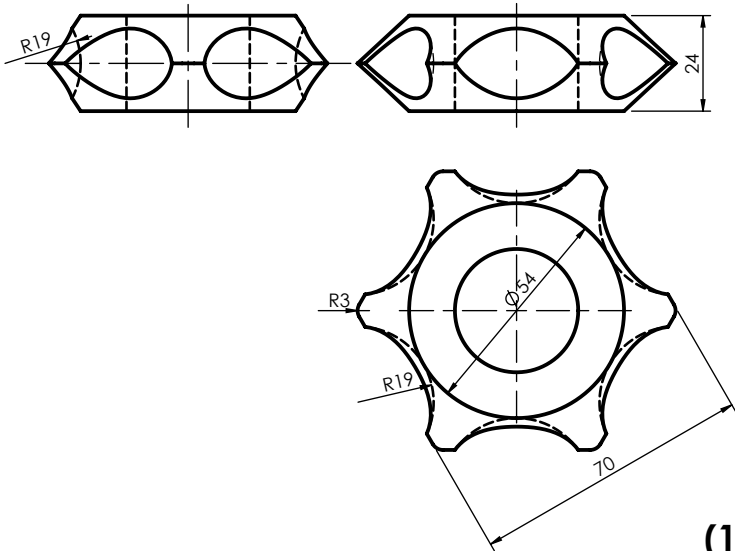


(17)

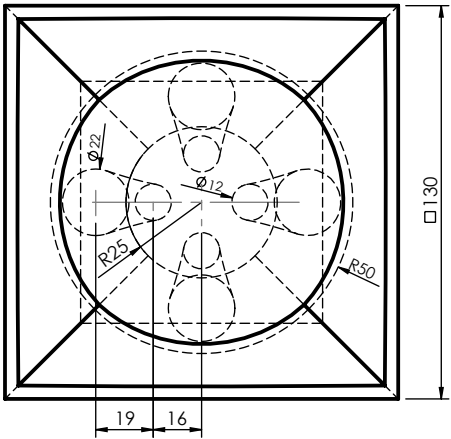
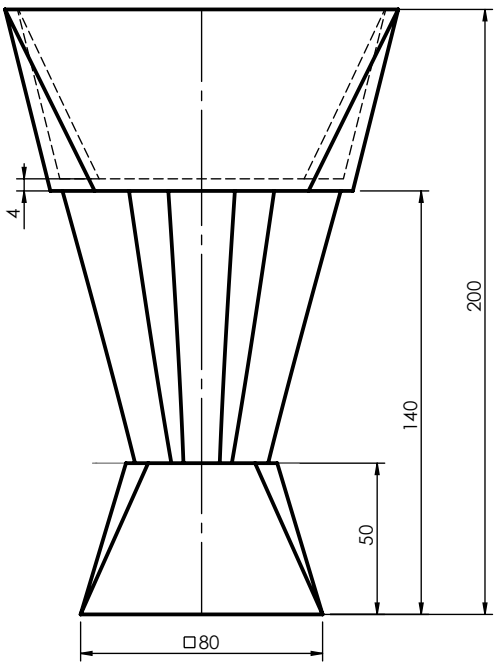


(18)

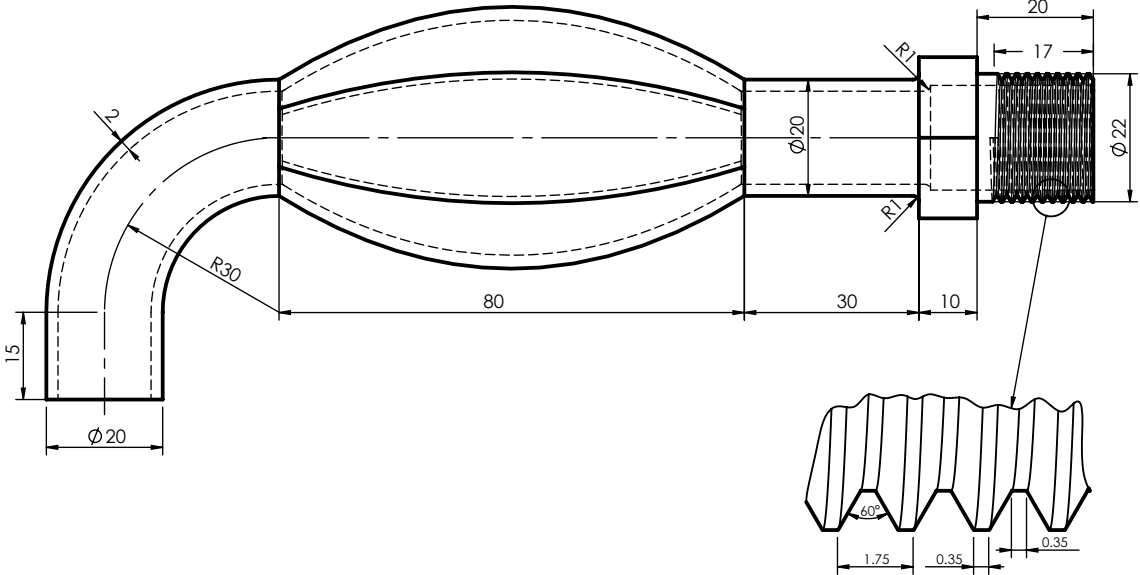
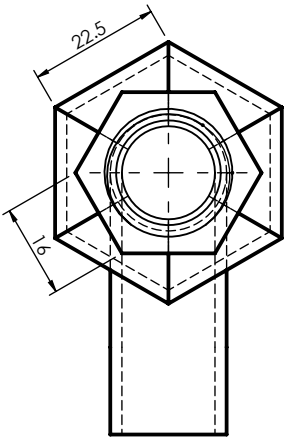
-Level 3



(19)



(20) (21)



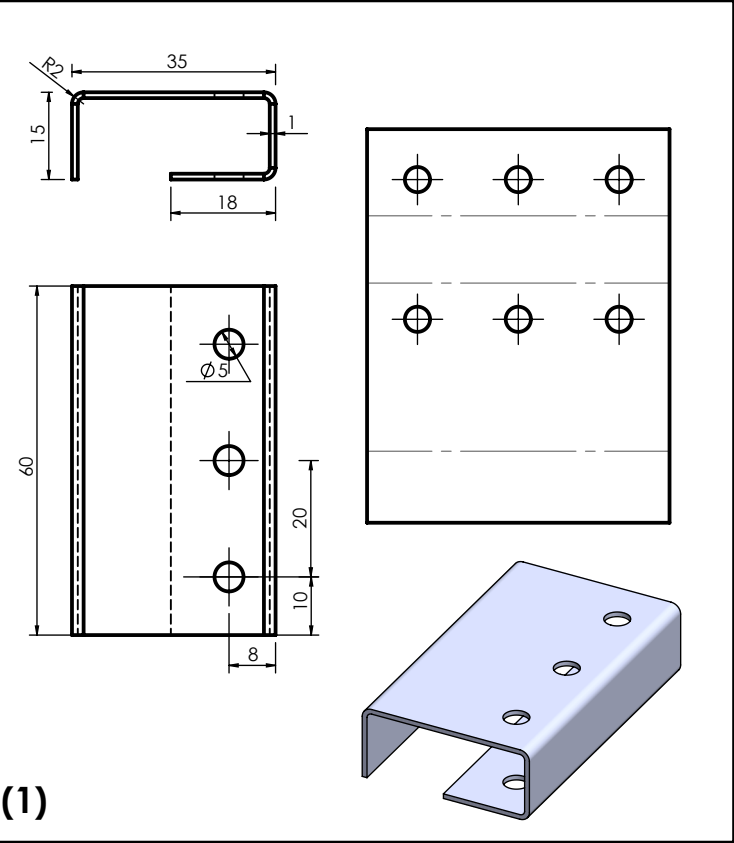
(22)

Sketch Entities:	.
Sketch Tools :	.
Sheet Metal Tools :	<i>Base Flange ,Convert to sheet metal , lofted - Bend , Sketched Bend , Fold</i>

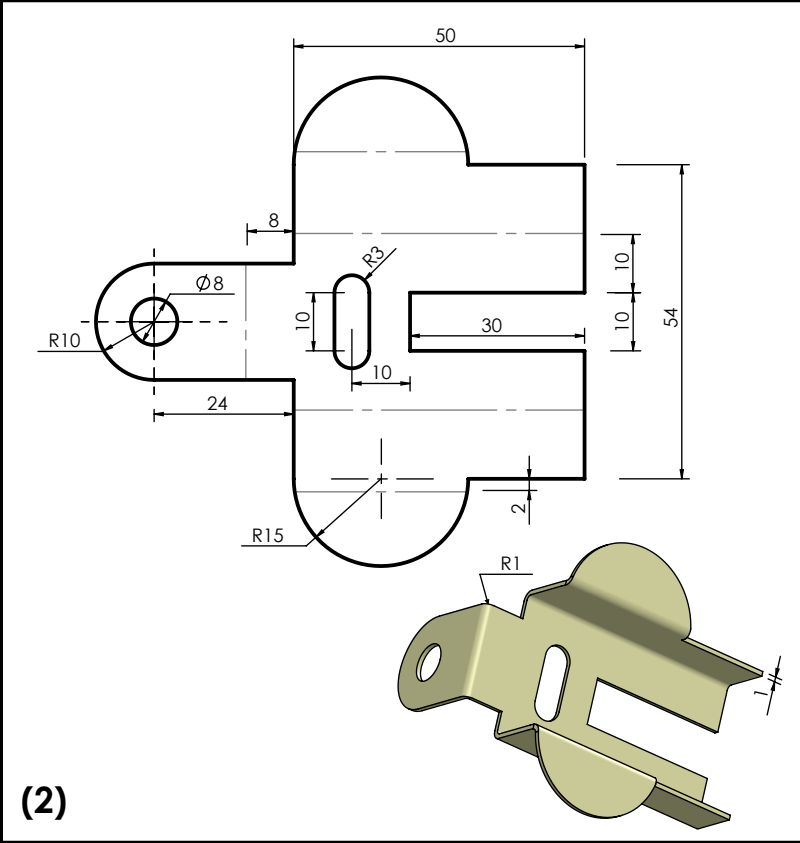
Problem: Construct the sheet metal parts with the given dimensions.

CLASSWORK

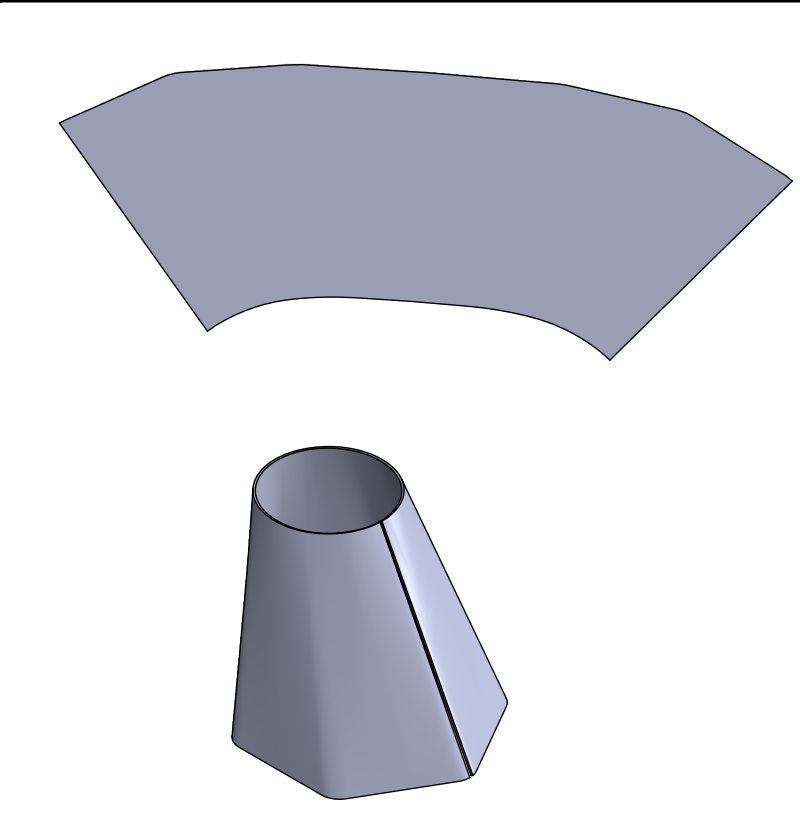
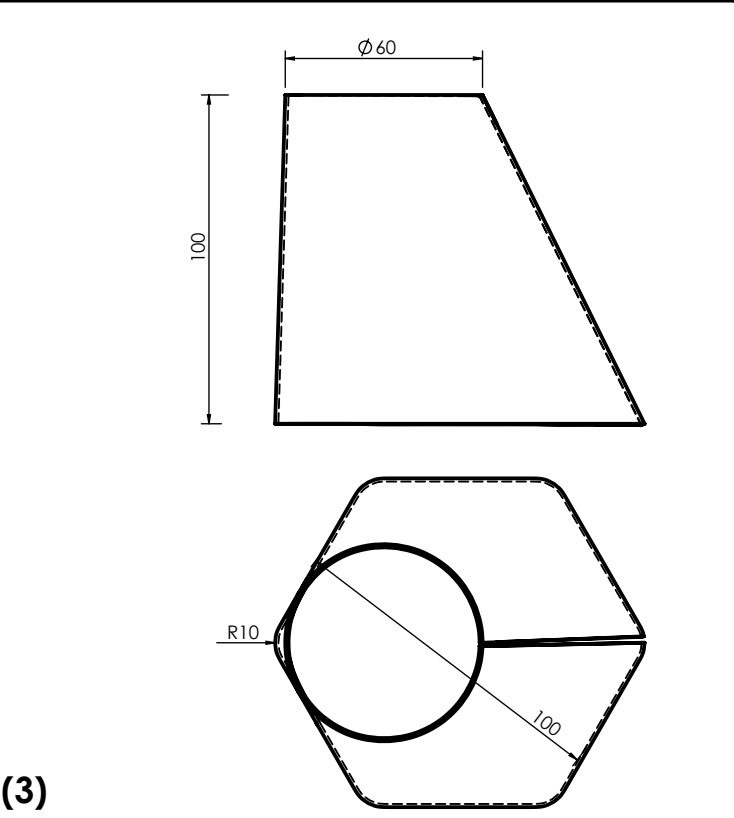
(1)



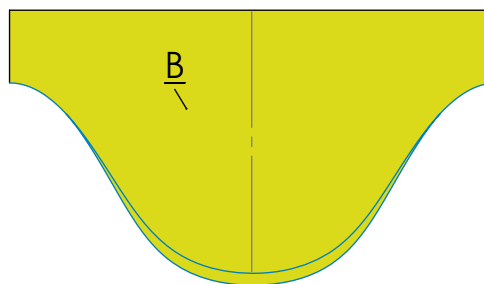
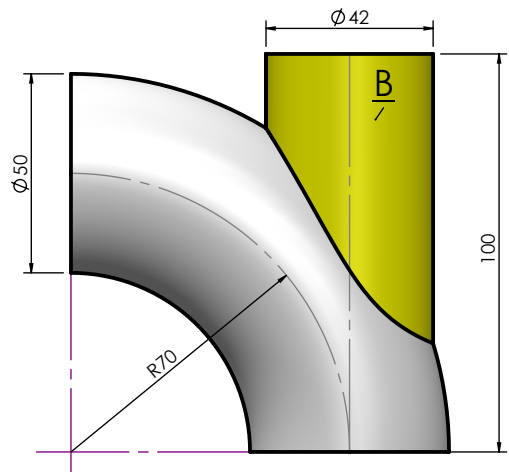
(2)



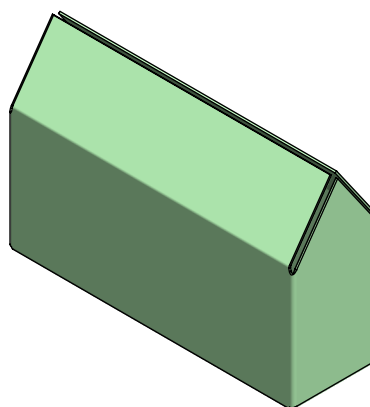
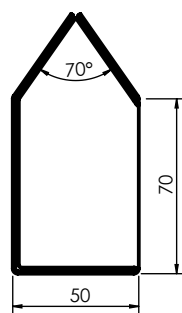
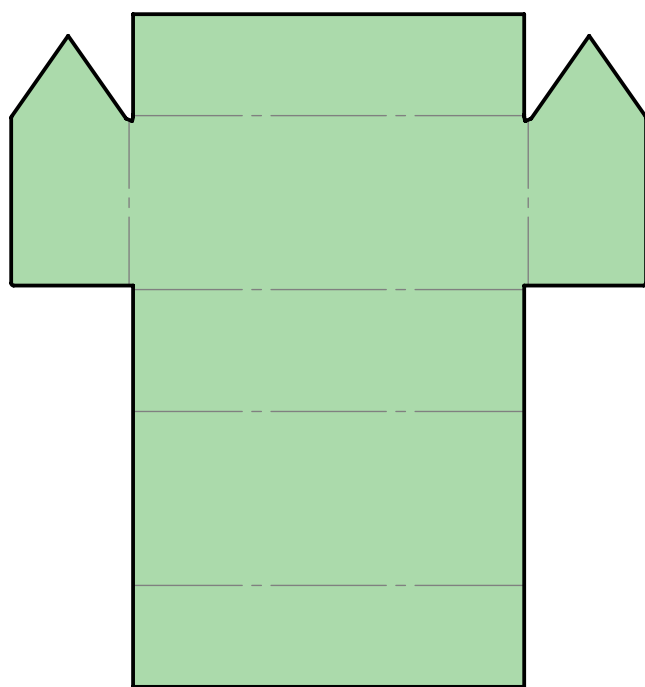
(3)



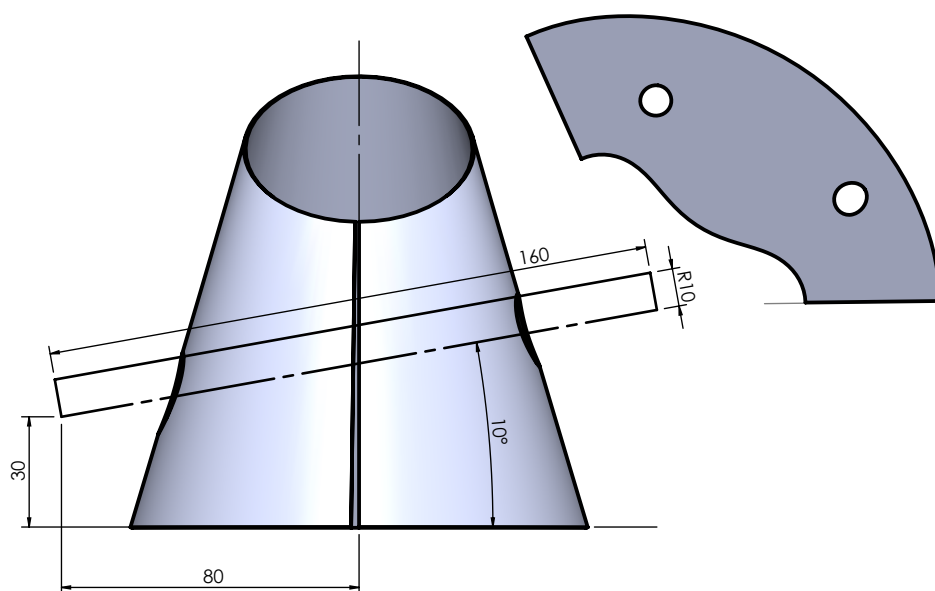
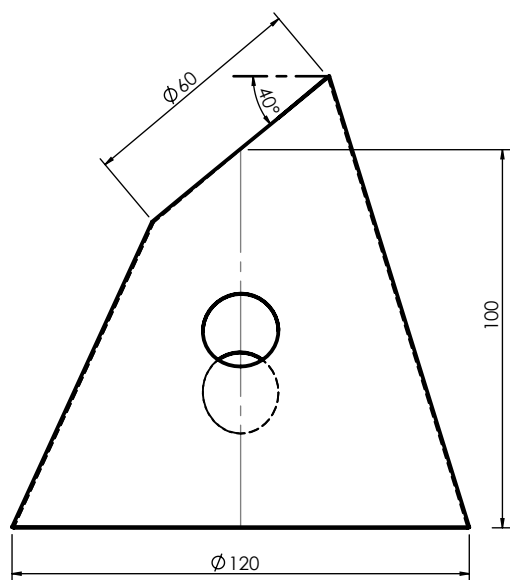
(4)



(5)



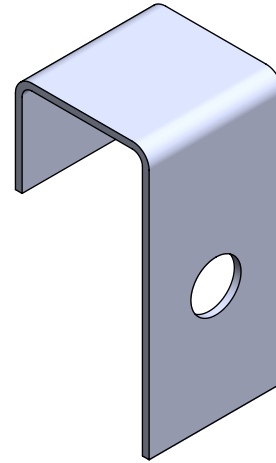
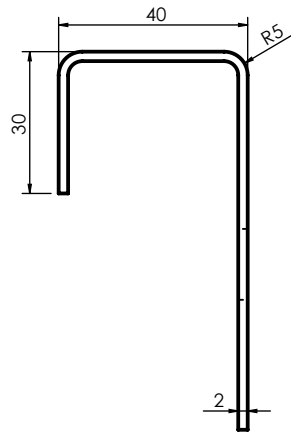
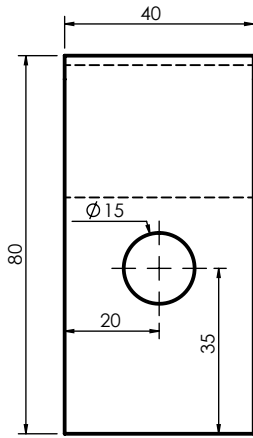
(6)



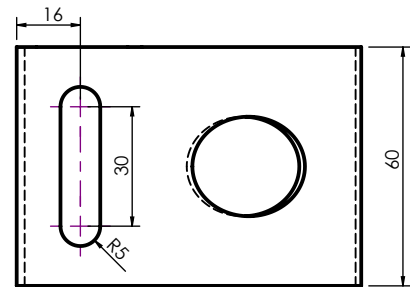
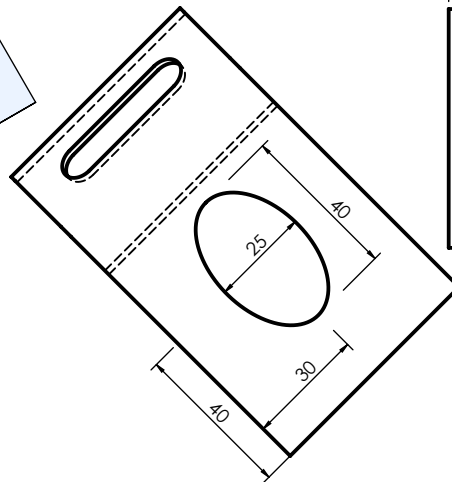
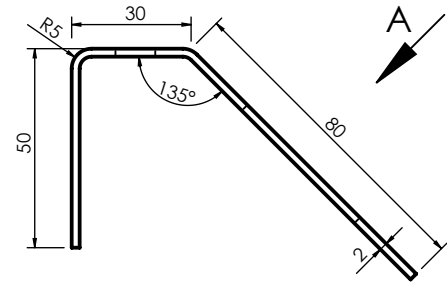
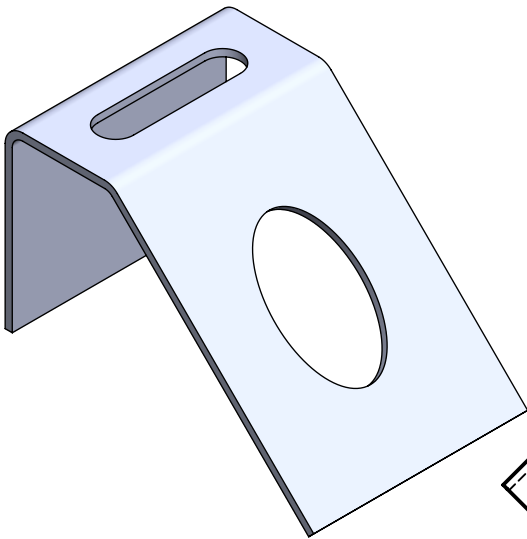
HOMEWORK

-Level 1

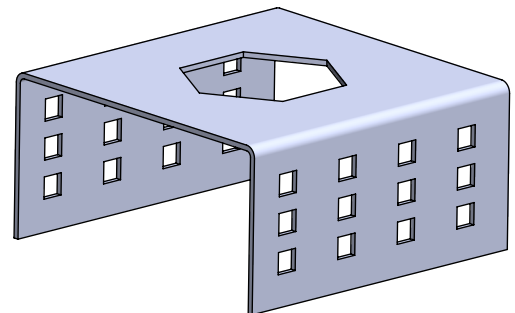
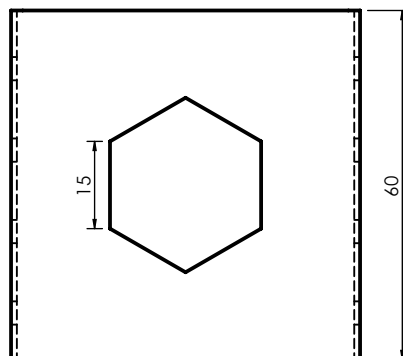
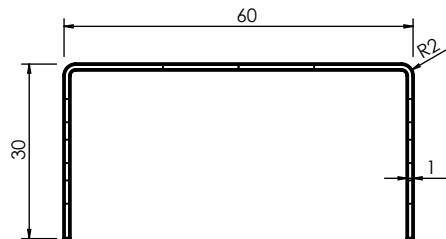
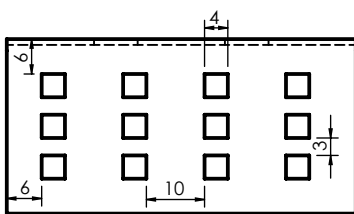
(7)

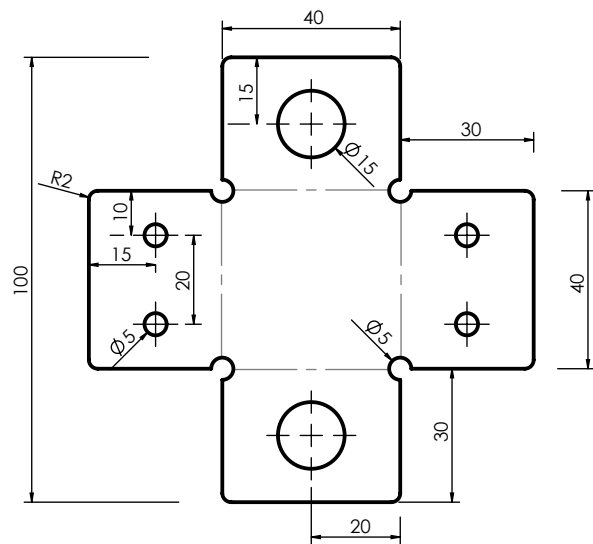


(8)

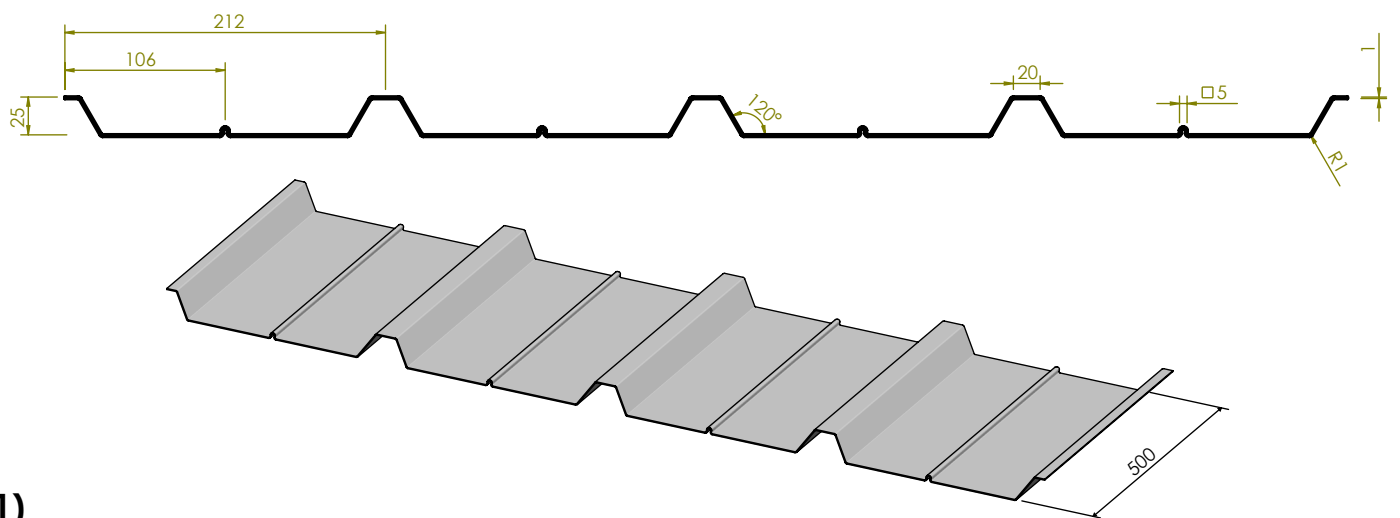


(9)

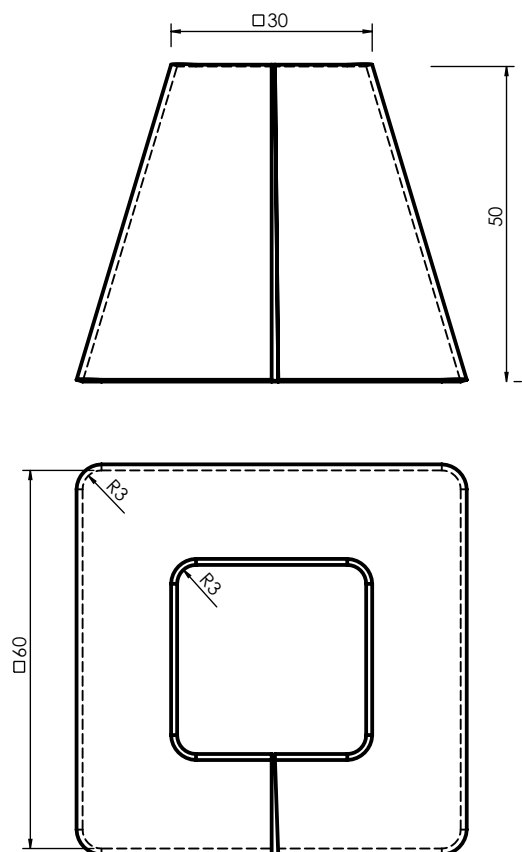




(10)

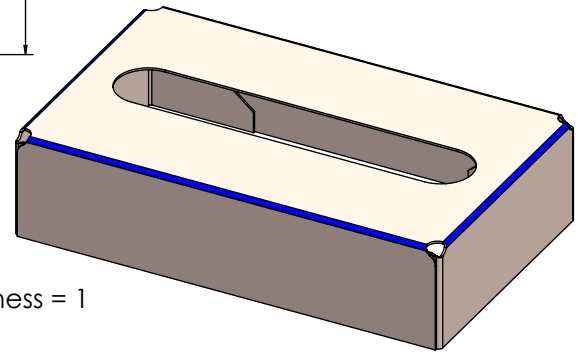
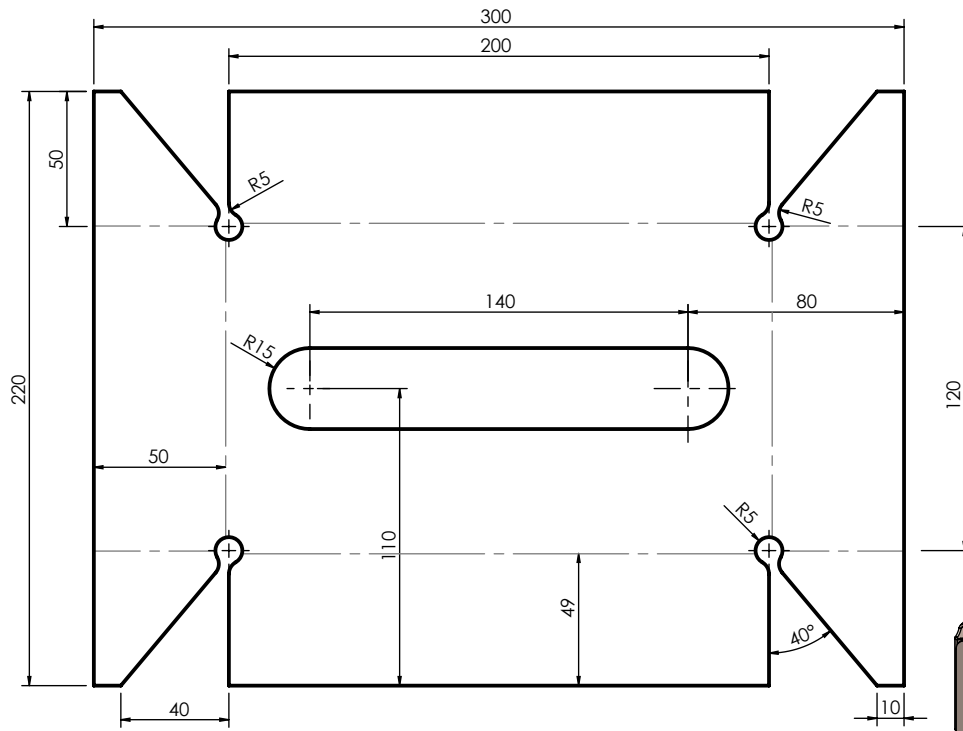


(11)



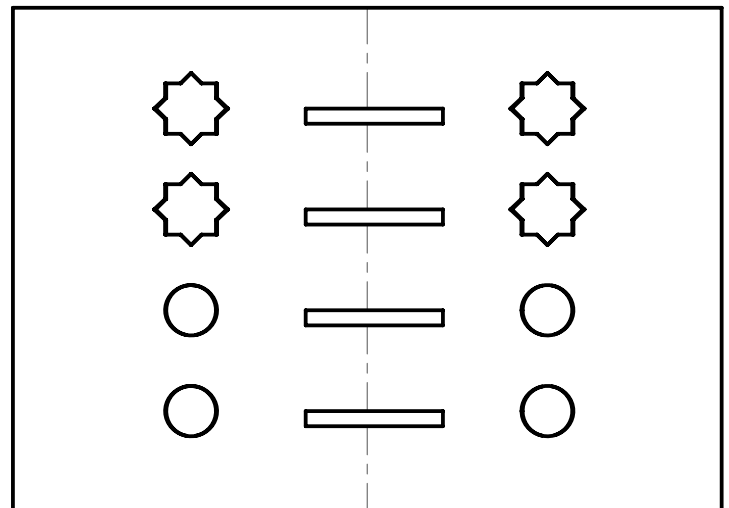
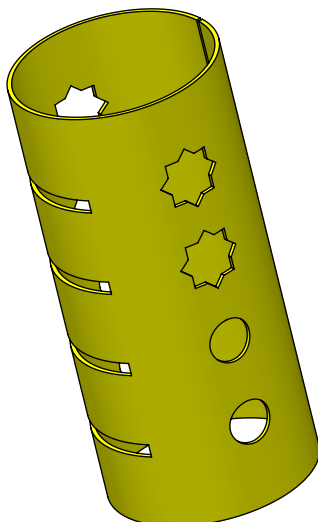
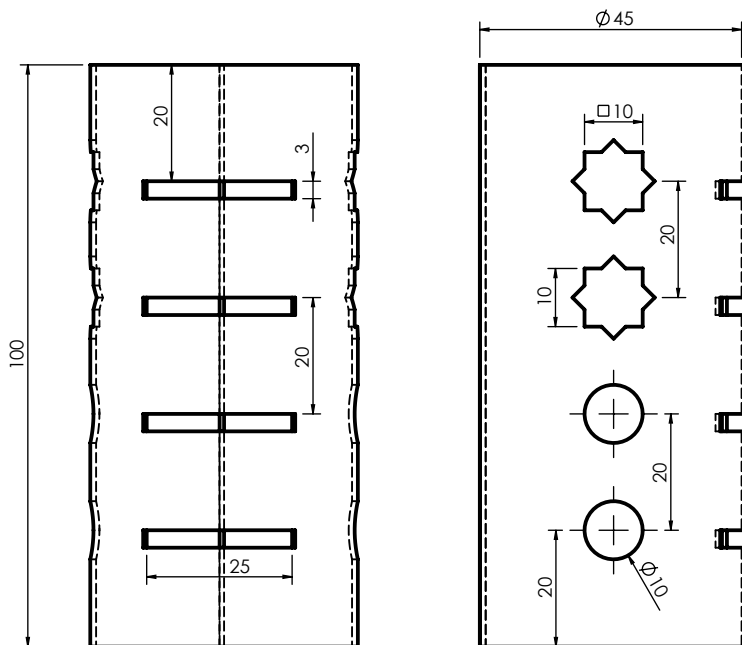
(12)

-Level 2

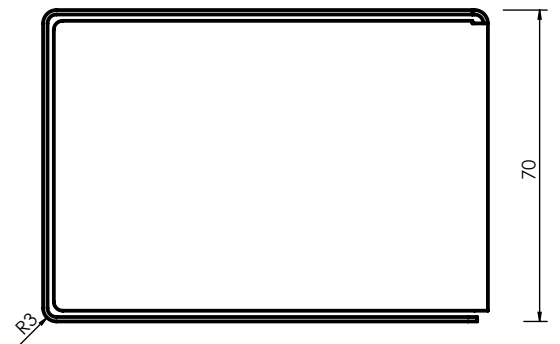
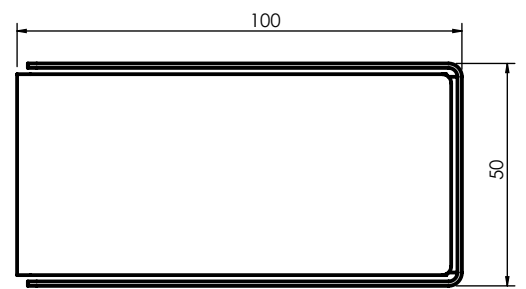
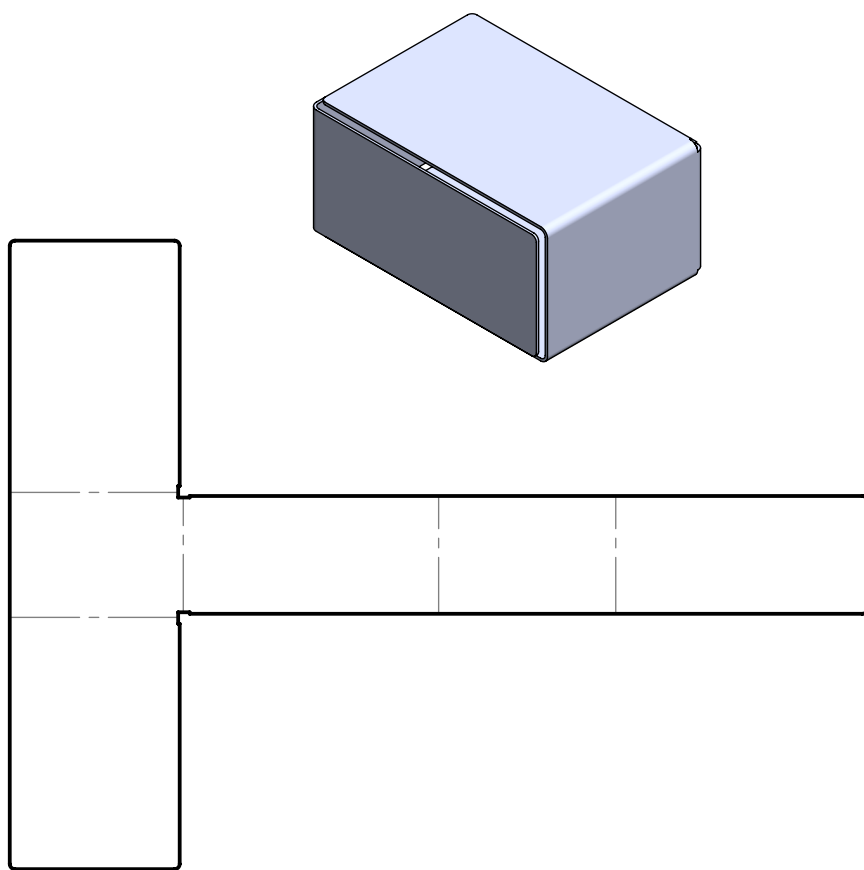


Thickness = 1
R = 1

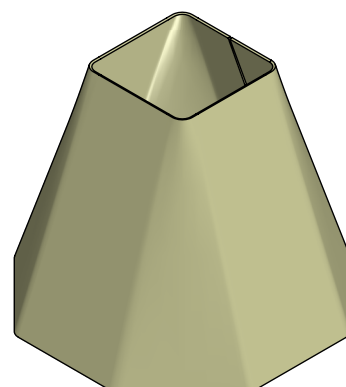
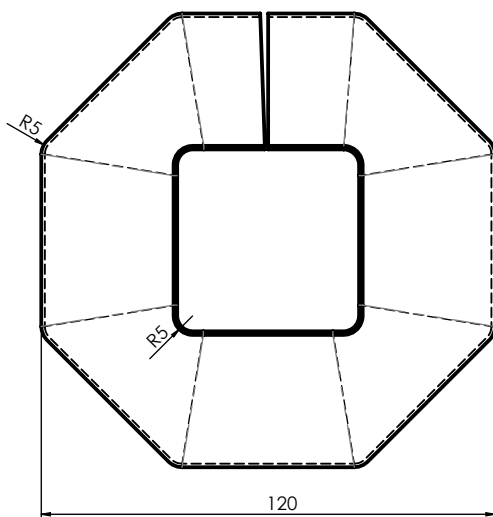
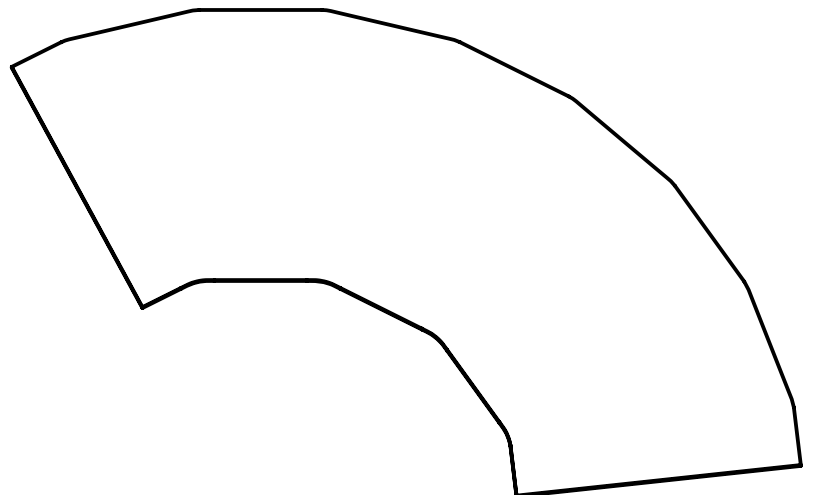
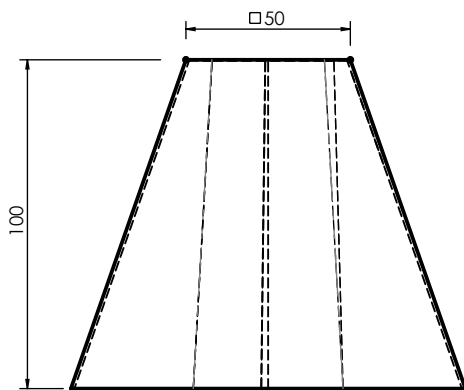
(13)



(14)

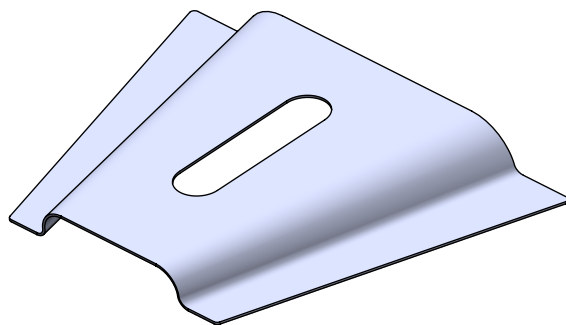
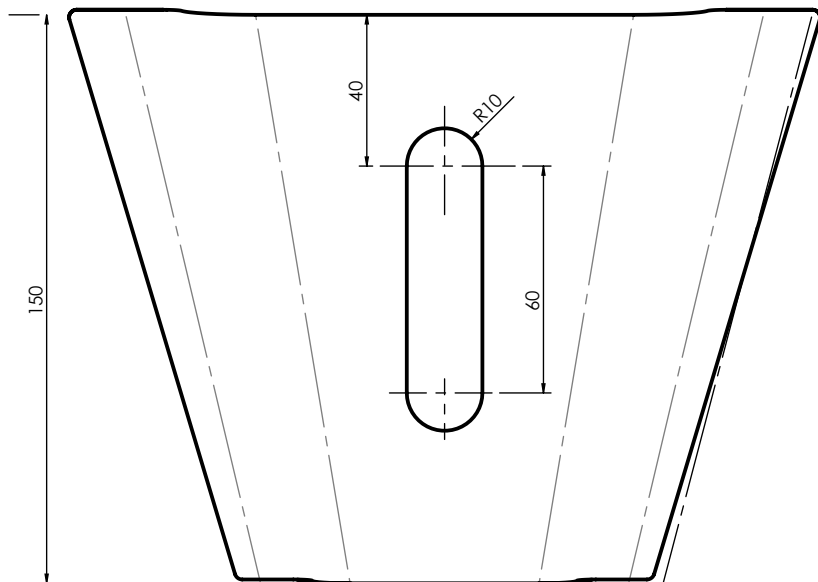
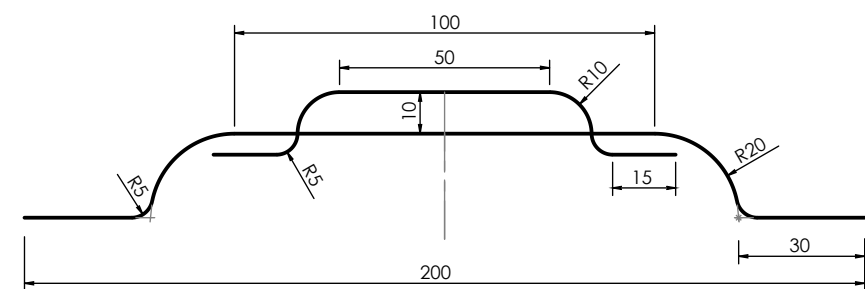


(15)

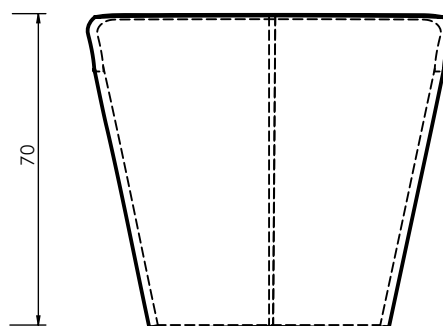
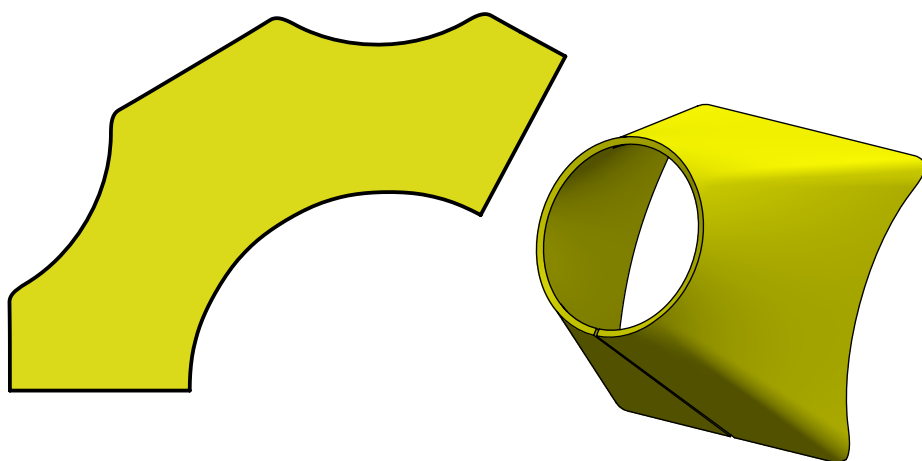
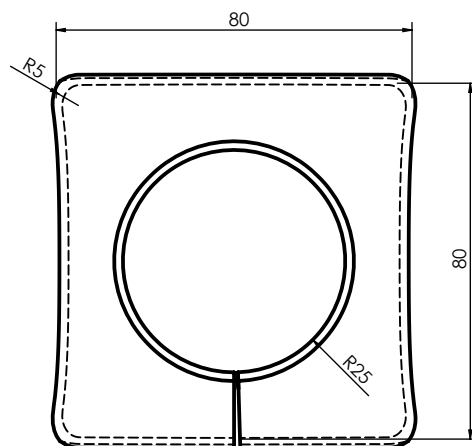
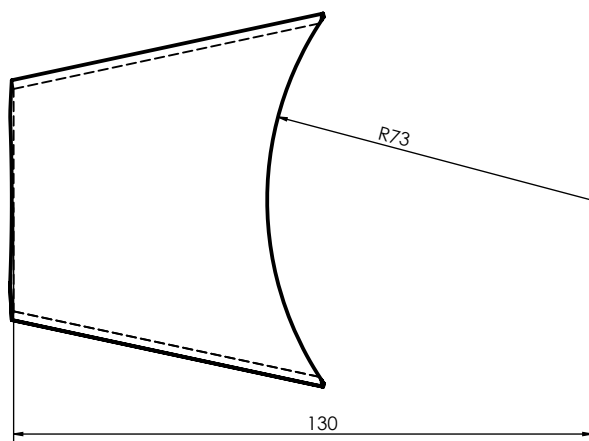


(16)

-Level 3



(17)

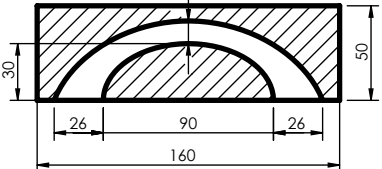
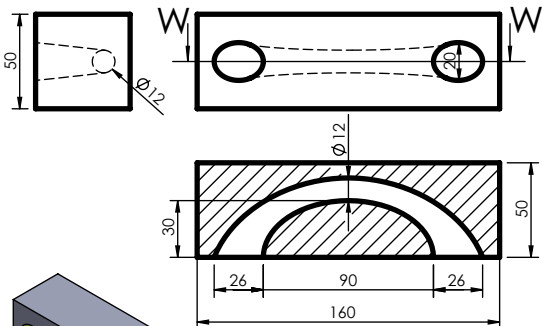
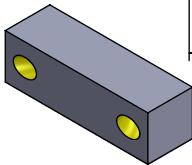


(18)

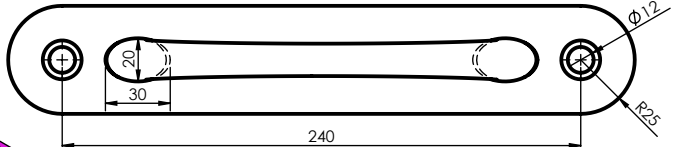
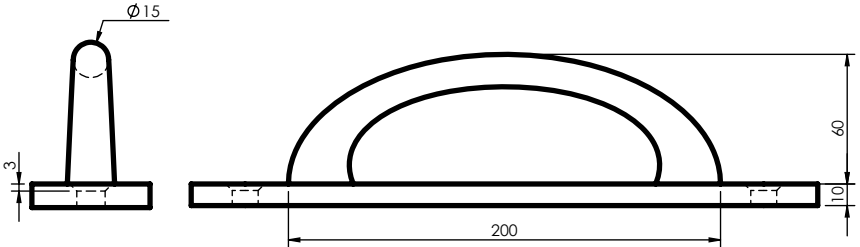
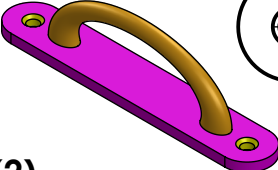
Sketch Entities:
Sketch Tools :
Feature :

Problems: Create the 3D model with the same dimension

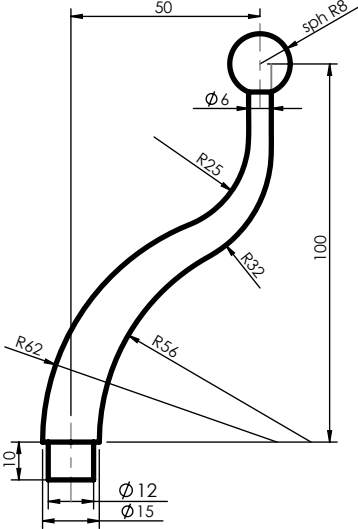
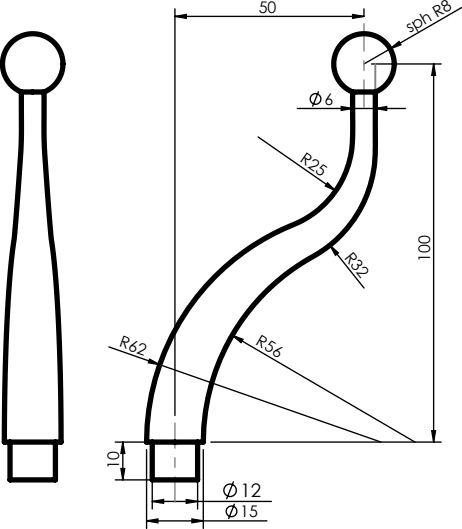
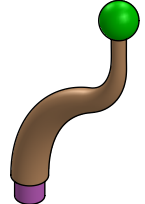
CLASSWORK



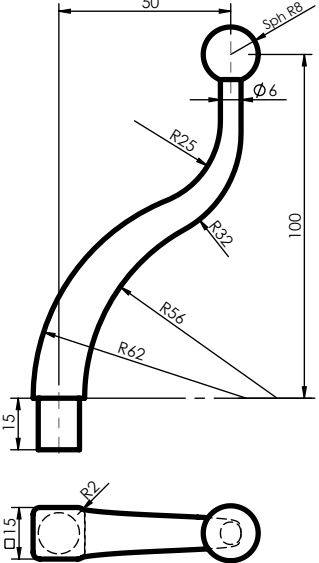
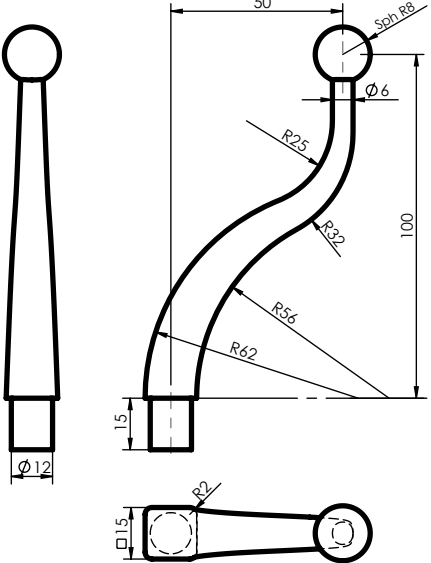
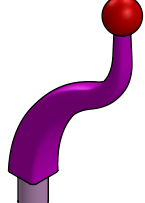
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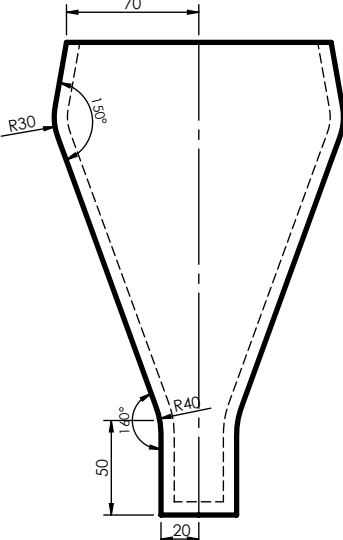
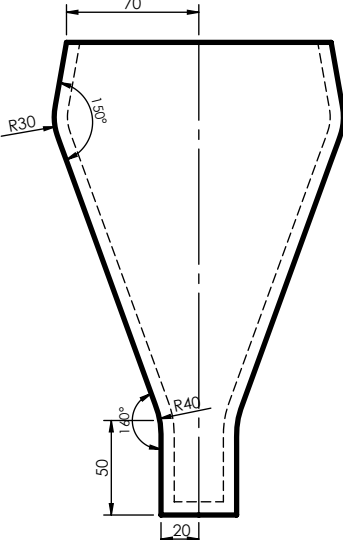
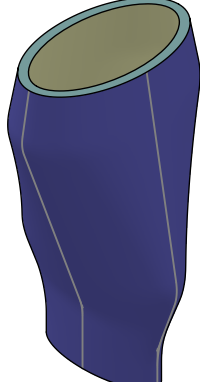
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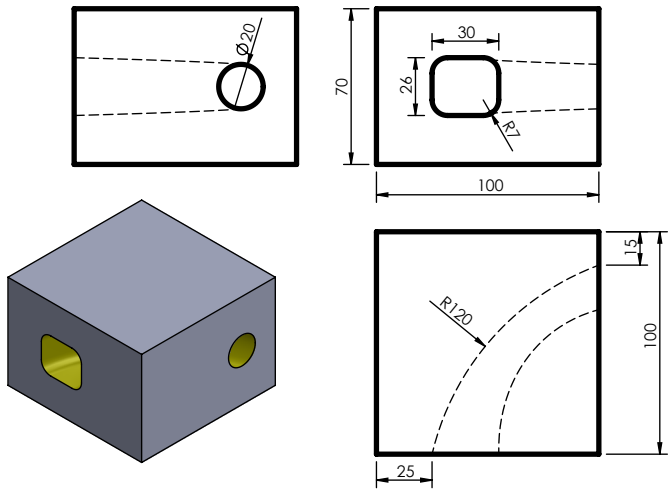


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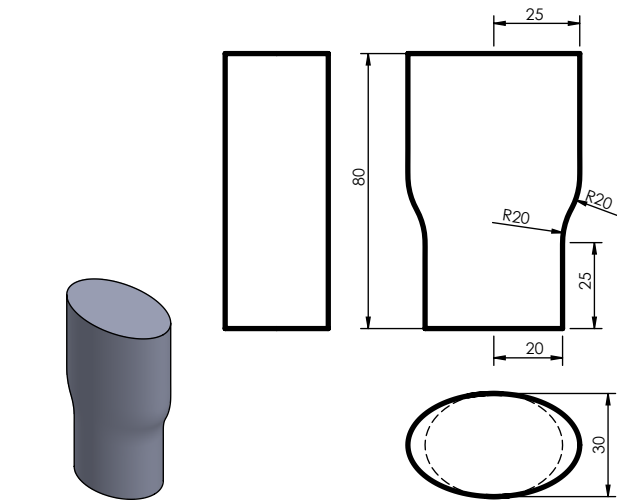


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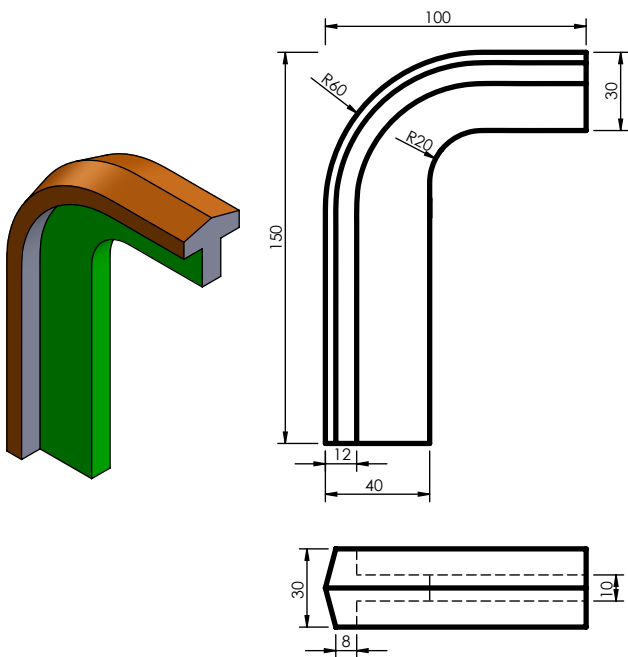
Level 1



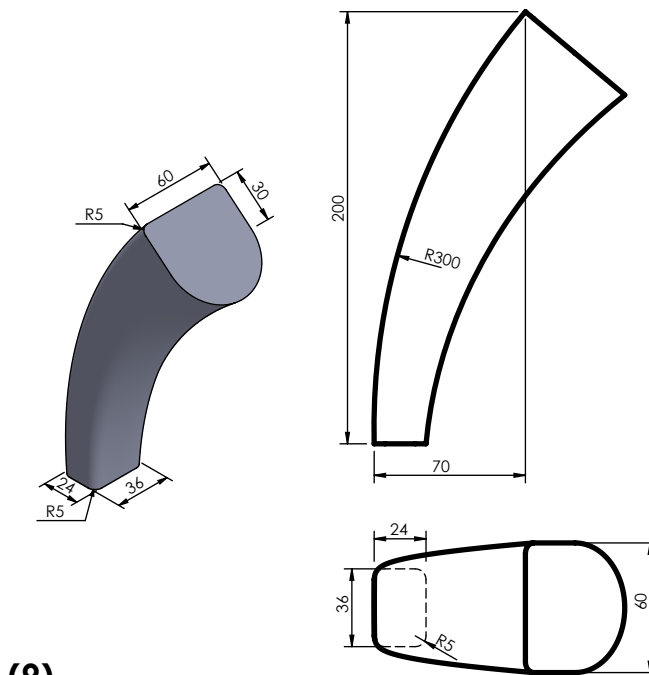
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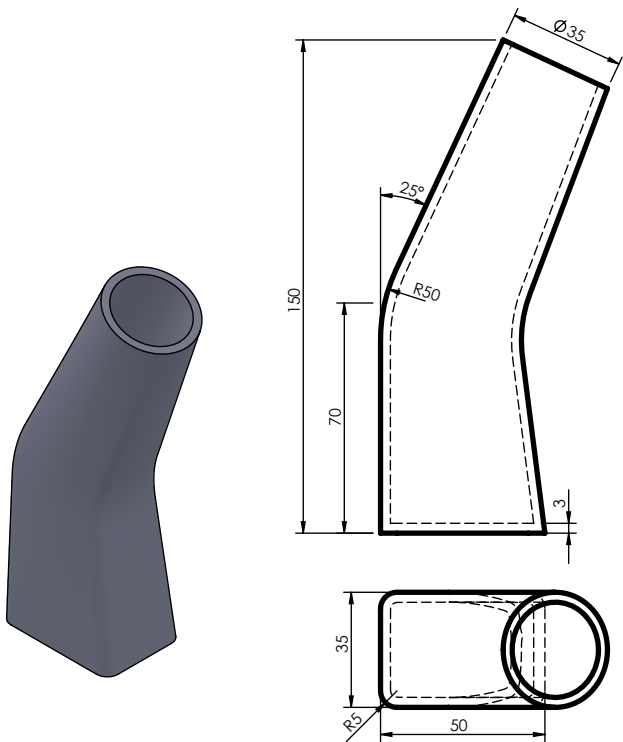
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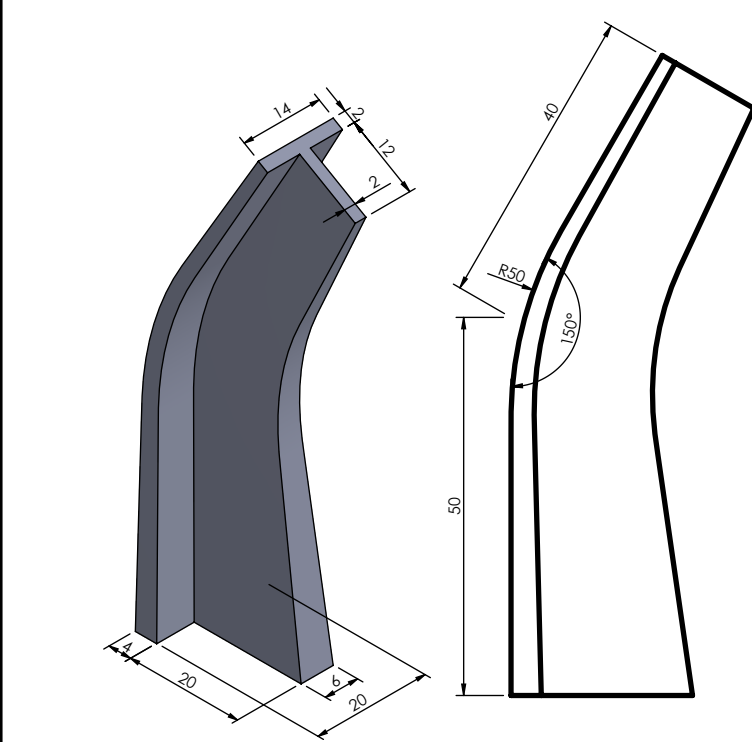
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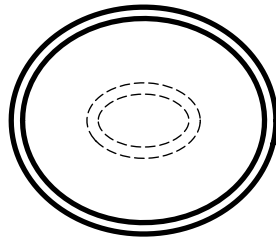
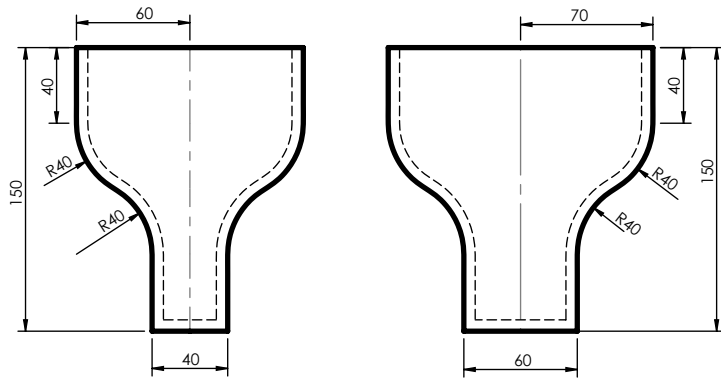


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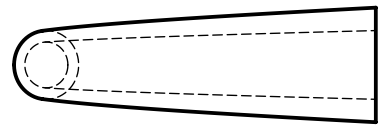
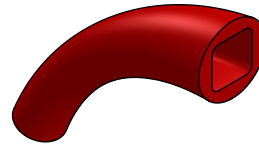
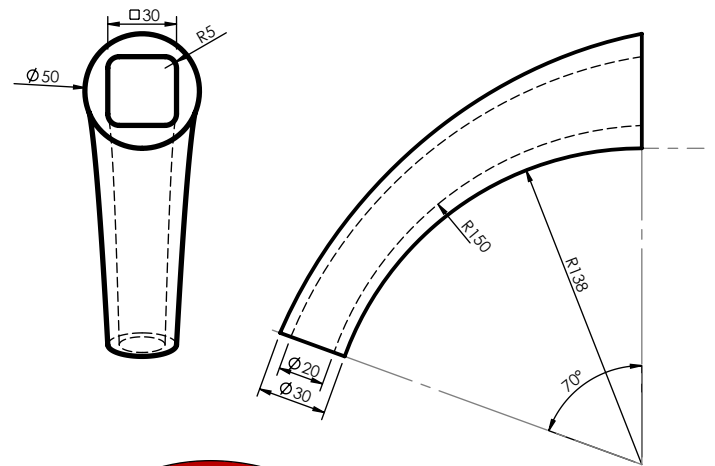


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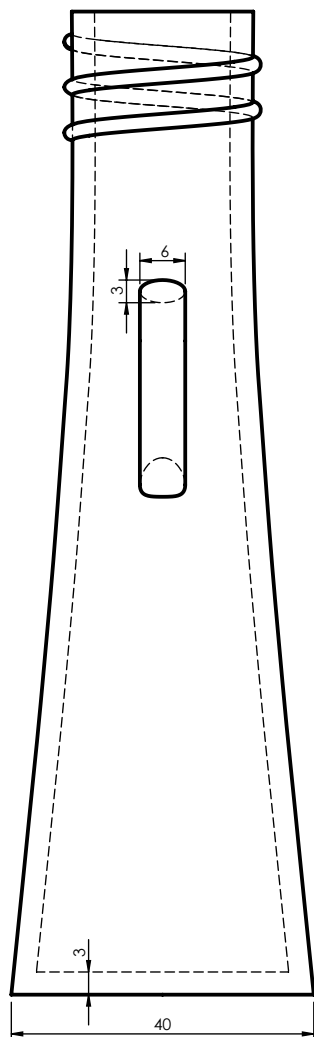
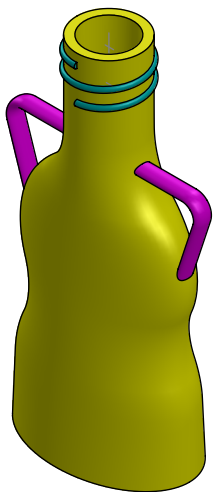
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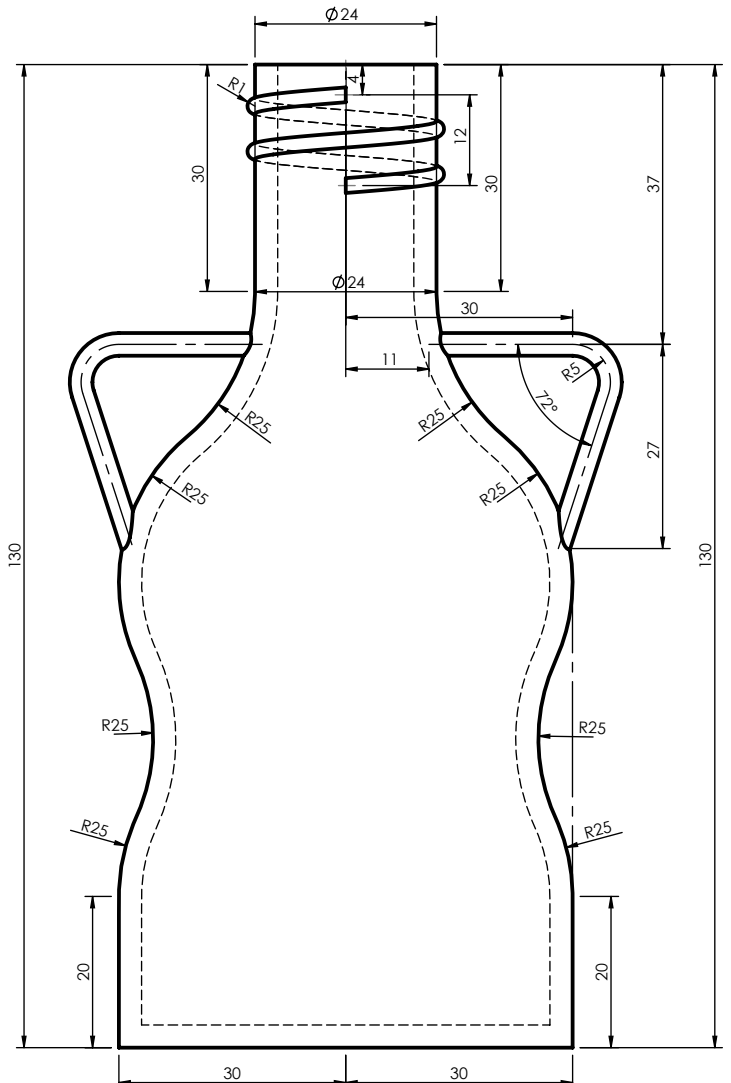
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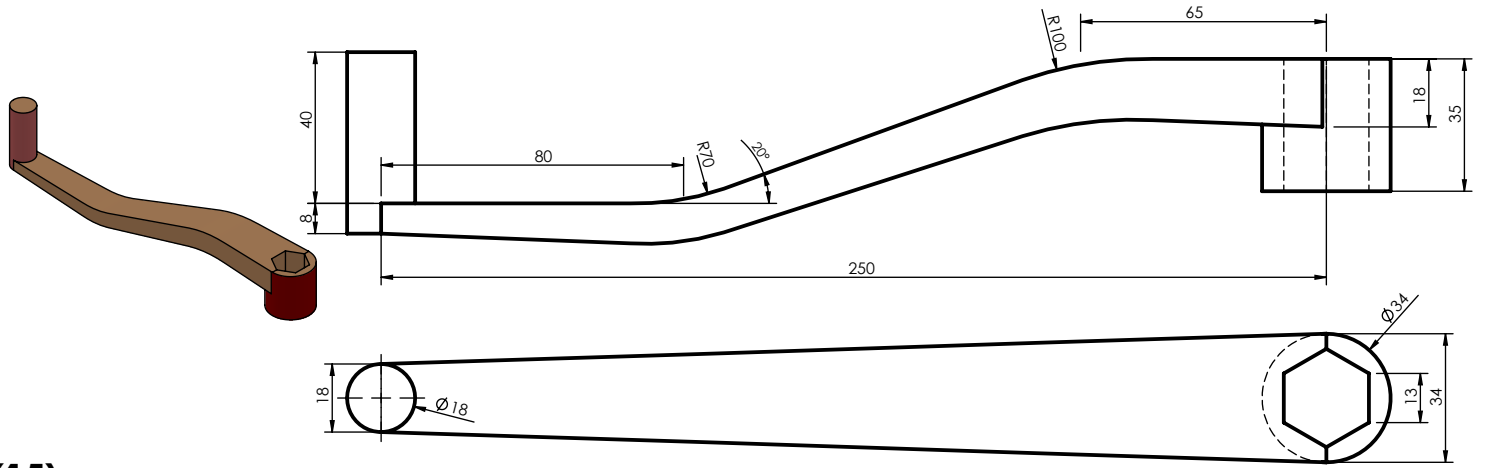
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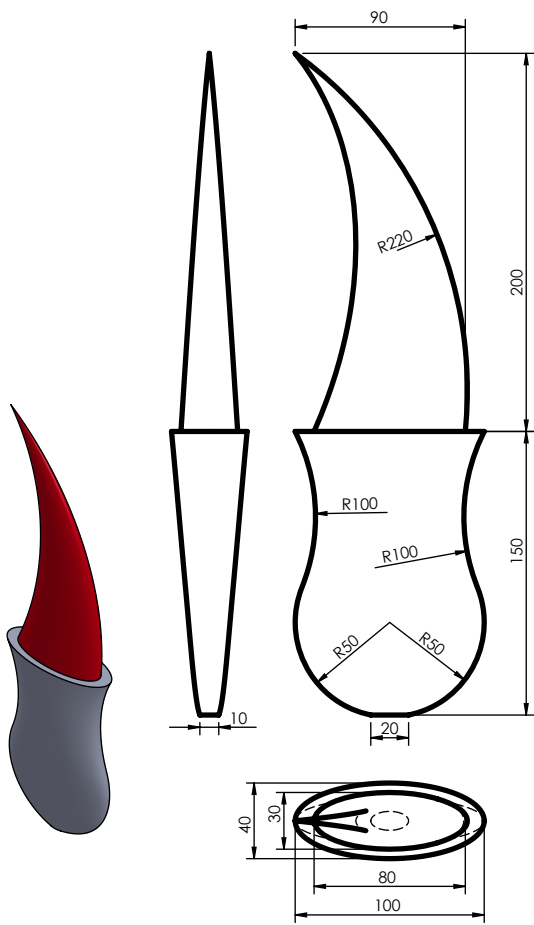
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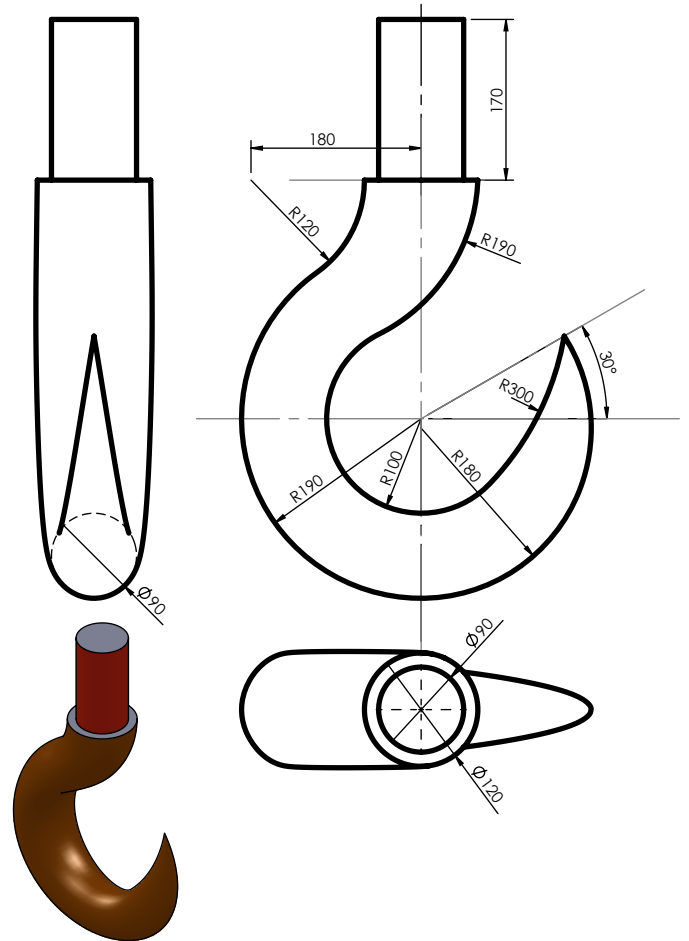
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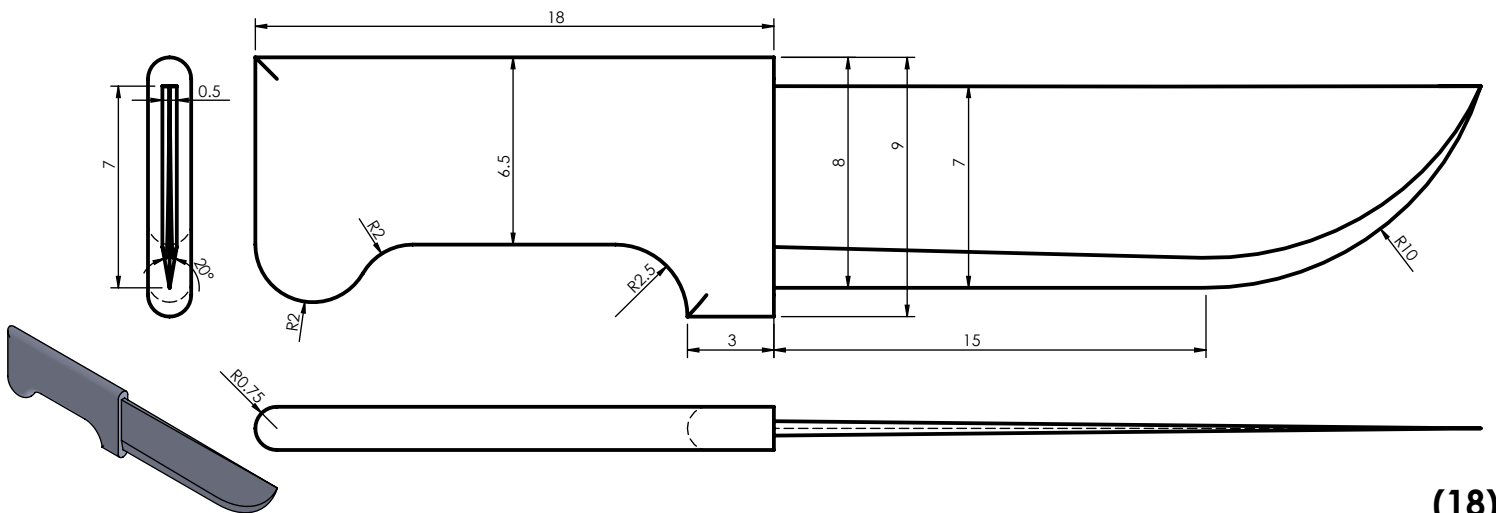
(15)



(16)



(17)



(18)